THE
PALESTINE EXPLORATION FUND.

NOTES AND NEWS.

We hear from Herr Schick that a cave has been found in Jerusalem itself at a depth of no less than 47 feet 6 inches below the surface. The discovery was made in certain excavations conducted by the Russians south-east of the Church of the Holy Sepulchre. When the cave is cleared out he will report further upon it. Additional vaults of masonry have also been found in the Muristan.

Some years ago the Russian mission acquired a piece of land near the ancient site of Jericho. In digging for a foundation, capitals, pillars, lintels, iron weapons and instruments, pottery lamps and jars, brass or bronze trays, candlesticks, rings, &c., have been found—in fact, all the indications of important buildings. The Russian Exploration Society are erecting new buildings for hospices, &c., to the north of the Russian buildings.

Herr Schumacher reports the discovery of a cave near Nazareth, which he thinks will prove of great interest in connection with Mediæval traditions.

We have also received from Herr Schumacher his detailed Report of an examination of Abîl—the Abila of the Decapolis—situated in the south bank of the Yarmûk. The Report contains a plan with numerous illustrations. It will be published next year.

The University of the South has conferred upon Major Conder, R.E., the degree of D.C.L., Honoris Causâ; the other honorary degrees for the year conferred on Englishmen being Prebendary Rowe, D.D., and Rev. J. A. Hewitt, D.D.

The Lists of Old and New Testament names and identifications, with the references to Josephus, are now ready. Subscribers can have copies of the latter, separate, at 1*s.*, and of the two together, in paper cover, for 3*s.*, and bound for 3*s.* 6*d.*, by application to the office only. To the general public the price of the book is 6*s.*

As already announced, with the view of clearing off the MSS. which await publication, the Committee have resolved on issuing an edition, in form similar to, and uniform with, the "Survey of Western Palestine," of the following works:—

1. Conder's "Survey of Eastern Palestine," so far as completed. The MS. is very voluminous, containing as much as will make a volume equal in size to those of the "Memoirs" in the "Survey of Western Palestine." None of it has been published; the drawings are very numerous, and of the deepest interest to the student of prehistoric monuments, as well as for the illustration of the Bible.
2. The Archæological Mission of M. Clermont-Ganneau, with the drawings of M. le Comte.

   These drawings are many hundreds in number, and executed in the finest style. They figure a vast number of monuments and ruins not in the "Memoirs."
3. The Flora and Fauna of the Wâdy Arabah, by J. Chichester Hart, Esq., accompanied by many drawings of plants, &c., in the best style.

The editions will be limited to 500. The first 250 subscribers will pay seven guineas for the three volumes, with an index; subscribers to the "Survey of Western Palestine" will be privileged to have the volumes for this sum. The price will be raised, after 250 names are received, to twelve guineas. The Committee *are pledged never to let any copies be subscribed under the sum of seven guineas.* Mr. A. P. Watt, 2, Paternoster Square, is the agent.

Mr. A. P. Watt has now received a sufficient number of names to warrant the commencement of the publication of the Eastern Survey, the results of M. Clermont-Ganneau's Mission and Mr. Chichester Hart's Mission. Intending subscribers to these most important and valuable works are requested to send their names to Mr. Watt (2, Paternoster Square) without delay.

The Palestine Pilgrims' Text Society has now issued the following works:—

1. "The Holy Places visited by Antoninus Martyr."
2. "The Pilgrimage of the Holy Paula."
3. The Buildings of Justinian. By "Procopius."
4. The Description of Syria. By "Mukaddasi."
5. "The Bordeaux Pilgrim."
6. "The Abbot Daniel."
7. "The Crusader's Letter from Acre to England."
8. "The Norman-French Description of the City and the Country." Translated and annotated by Captain Conder, R.E.
9. "The Travels of Nasîr-i-Khusrau." Translated by Guy Le Strange.

In the press, and will be issued before the end of the year:—

"Arculfus de Locis Sanctis." Translated by Rev. R. Macpherson, and annotated by Sir Charles Wilson.

The friends of the Society are earnestly requested to use the "Memoirs of Twenty-one Years' Work" as a means of showing what the work has been, and what remains to be done.

Subscribers are very earnestly asked :—(1) To pay their subscriptions early in the year—say in January. (2) To pay them direct to Coutts and Co. by a banker's order. (3) If they would rather choose their own time, to send up their subscriptions without being reminded. The Clerical Staff of the Society is small; it is most desirable not to increase it; and if these simple requests are attended to a great saving of clerical labour, postage, and stationery is effected. For instance, there are, say, 3,000 subscribers. If every one of these waits to be reminded, and has to have a receipt sent to him, the Society has to spend £25 a year additional in postage, and to write 6,000 letters, merely to ask for and to acknowledge the receipt of the subscriptions.

It has come to the knowledge of the Committee that certain book hawkers are representing themselves as agents of the Society. The Committee have to caution subscribers that they have no book hawkers in their employ, and that none of their works are sold by any itinerant agents.

The Rev. James Neil, author of "Palestine Explored," has issued a pamphlet called "Strange Scenes," in which, for one penny, he gives a series of illustrations of the Bible taken from the country itself—with forty illustrations by Mr. H. A. Harper. The publishers are Messrs. Woodford, Fawcett, & Co., Salisbury Square, E.C.

The following books are now published uniform in size and appearance :—Conder's "Tent Work;" Conder's "Heth and Moab;" Schumacher's "Across the Jordan;" "The Memoirs of Twenty-One Years' Work;" Conder's "Syrian Stone Lore;" Conder's "Altaic Inscriptions;" and Schumacher's "Jaulan." Subscribers can have the whole set, together with Hull's "Mount Seir," and Names and Places, for 32*s*., carriage free.

Mr. Armstrong has prepared a list of the photographs belonging to the Society, arranged alphabetically according to those Bible names which are illustrated by views. This list is now ready. Those who wish for a copy may send in their names.

The income of the Society, from June 22nd to September 17th, 1888, inclusive, was—from subscriptions and donations, £122 0*s*. 0*d*.; from all sources, £296 7*s*. 3*d*. The expenditure during the same period was £269 18*s*. 10*d*. On June 21st the balance in the Banks was £235 18*s*. 3*d*.

Subscribers who do not receive the *Quarterly Statement* regularly are asked to send a note to the Secretary. Great care is taken to forward each number to all who are entitled to receive it, but changes of address and other causes give rise occasionally to omissions.

It does not seem generally known that cases for binding the *Quarterly Statement* can be had by subscribers, on application to the office, at 1*s*. each.

While desiring to give every publicity to proposed identifications and other theories advanced by officers of the Fund and contributors to the pages of the *Quarterly Statement*, the Committee wish it to be distinctly understood that by publishing them in the *Quarterly Statement* they neither sanction nor adopt them

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The only authorised lecturers for the Society are—

(1) Mr. George St. Clair, F.G.S., Member of the Anthropological Institute and of the Society of Biblical Archæology.
His subjects are :—

(1) *The General Exploration of Palestine.*
(2) *Jerusalem Buried and Recovered.*
(3) *Buried Cities, Egypt and Palestine.*
(4) *Buried Cities of Mesopotamia*, with some account of the Hittites.
(5) *The Moabite Stone and the Pedigree of the English Alphabet.*

Address : Geo. St. Clair, Bristol Road, Birmingham, or at the Office of the Fund.

(2) The Rev. Henry Geary, Vicar of St. Thomas's, Portman Square. His lectures are on the following subjects :—

The Survey of Western Palestine, as illustrating Bible History.
Palestine East of the Jordan.
The Jerusalem Excavations.
A Restoration of Ancient Jerusalem. Illustrated by original photographs shown as "dissolving views."

(3) The Rev. James King, Vicar of St. Mary's, Berwick. His subjects are as follows :—

The Survey of Western Palestine.
Jerusalem.
The Hittites.
The Moabite Stone and other monuments.

(4) The Rev. Thomas Harrison, 38, Melrose Gardens, West Kensington Park, W. His subjects are as follows :—

(1) *Research and Discovery in the Holy Land.*
(2) *In the Track of the Israelites from Egypt to Canaan.*
(3) *Bible Scenes in the Light of Modern Science.*

NARRATIVE OF A SCIENTIFIC EXPEDITION IN THE TRANS-JORDANIC REGION IN THE SPRING OF 1886.

N.B.—*I have adopted generally, for obvious reasons of convenience, the orthography of proper names used by the P. E. F. in maps and other publications.*

The object of the expedition, of which the following is a narrative, was the study, in the field, of the Flora of Moab, Gilead, and Haurân, with special reference to the forthcoming Flora of Syria and Palestine, and to observe and collect the birds of the same region, to be added to the collections of the Syrian Protestant College, with a view to the ultimate preparation of a work on the Ornithology of the same district. In addition to these, the prime objects of the expedition, accurate observations were made and recorded of the readings of two aneroids, one of Browning's and the other of Watson's make, with a view to settling the altitude of the places visited. The *personnel* of the expedition consisted of Dr. Thomas W. Kay, Professor of Zoölogy in the Syrian Protestant College, Mr. Daûd Salîm, B.A., an advanced medical student in the same, and the author. The time chosen was that in which the greatest number of plants are in season, some traces of those of the early spring being still found, while the summer plants are in many cases in a sufficiently forward state to enable one familiar with the botany of the country to determine them. As far as the Ghor is concerned, this journey was supplementary to a hasty one made in 1882, but not extended to the Shittim plain.

The barometers used during this journey were observed during the two months preceding at the Observatory of the Syrian Protestant College at Beirût. The mean for the whole of this period, corrected for the sea level, was 30·04 inches. At 5 p.m. of the day we left Beirût for Jaffa it was 29·99 inches. In the following notes B. will stand for Browning's and W. for Watson's barometer.[1]

April 19.—As Jerusalem was to be our base of operations, we went first to Jaffa by sea, taking with us only our scientific apparatus and personal baggage, leaving the arrangement of tents, transportation, and provisions to be made at Jerusalem. We had entered upon the season of steady, fair weather, and enjoyed a very quiet sail to Jaffa, arriving early next morning.

April 20.—At 7.30 a.m. we disembarked. Barometers : B., 30·05 ; W. 29·8 ; mean, 29·92. This observation was taken exactly at the sea level.

[1] I have chosen to record both readings, as well as to give the mean, owing to the fluctuations, for which I am unable to assign a reason. It had been my intention to take also a portable mercurial barometer, but it was unfortunately broken, and could not be repaired in time. I share the opinion of M. Barbey, expressed in his "Herborizations au Levant," as to the unreliability of aneroids for determination of altitudes.

From Jaffa to Jerusalem we made use of one of the rough wagons belonging to the German colonists, and drove over the ill-kept road, which seems to be worse every time one passes over it. We only noted the plants which lay along our road, as we had no time to go to any distance in search of specimens. We observed in the hedges of Jaffa Vicia sericocarpa, Fumaria Judaica, Lycium Barbarum, Urtica pilulifera, and U. membranacea, Acacia Farnesiana stretching its thorny arms over the road, Bryonia Syriaca trailing in and out among the hedges, Ephedra campylopoda, Rubus collinus, and Smilax aspera, var. Mauretanica.

Among the plants noted on the road to the foot of the mountain, beside the commoner species of the maritime plain, we find Silene Palæstina, Krubera peregrina, Ferula communis, Malcolmia pulchella, Cachrys goniocarpa.

All along the road women and children were seen gathering out weeds, especially tares, from among the wheat. The men were ploughing the ground to prepare it for Sorghum. This seed differs from that of wheat and barley in not requiring rain to cause it to mature, and so may be sown late in the spring, when it will get little or no moisture save that in the soil. The grain is not only fed to camels, but ground to make bread for the peasantry. In one case we passed a single camel yoked to a plough. Sometimes a team is made of a camel and an ass, the former being attached to the shorter and the latter to the longer arm of a rude sort of a yoke.

At Bab-el-Wad, at the foot of the mountains, half-way from Jaffa to Jerusalem, we stopped to bait our horses, who require three feedings to get them to Jerusalem. There is a small hotel here, where a botanist who desires to study the flora of this region may find lodging and a frugal diet. In fact, there were two young Americans then staying there, engaged in collecting flowers for ornamental books illustrative of the flora of Palestine. There is also a miserable café by the roadside. We ordered some coffee, and, being entitled to two piastres in change, we received coppers in nominal value thirteen piastres, and in weight about half a pound. The coinage of Turkey is unknowable. The nominal unit of value is a piastre, but no one has ever seen a coin which represents this unit. It is true that there are numerous coins stamped with the name piastre and fractions of a piastre, but they differ in value in every town. One piece, nominally a piastre, is worth half a piastre in one place and a little less in another, and more in another. A twenty-piastre piece is worth nineteen in one place, twenty-three in another, twenty-six in another, but not these numbers of any actual coin, but of an ideal piastre, which has no existence. In Beirût a Turkish gold medjeedie is worth $123\frac{1}{4}$ piastres, in Jerusalem $124\frac{1}{2}$, and so on. Accurate accounts in such a state of the coinage are quite impossible. There are many coins circulating at half, or a quarter, or even an eighth, of their nominal value. The paper issues of the Government are absolutely worthless.

The way from Bab-el-Wad to Jerusalem lies at first up the valley; it

then passes over several spurs of the mountain, making in some places a considerable descent, with corresponding loss of time in regaining the lost altitude. The most common trees on the road are the terebinth, the ever-green oak, and the olive. The Arbutus Andrachne is one of the most conspicuous of the shrubs. There is also an abundance of Calycotome villosa and Rhamnus Palæstina. It soon grew too dark to botanize, and we did not arrive in Jerusalem until half-past ten at night, twelve hours after leaving Jaffa. Barometer: B., 27·37; W., 27·20; mean, 27·285, at level of second floor of the Mediterranean Hotel.

The birds observed during the day were Passer domesticus, Merops apiaster, Alauda cristata, Carduelis elegans, Accipiter nisus, Milvus sp., Saxicola sp. We also saw a few lizards.

Wednesday, April 21, 7 a.m.—Barometer: B., 27·39; W., 27·19; mean, 27·29, which indicates a height of 2,500 feet. We had received a hospitable greeting the night before from Rev. S. Merrill, D.D., then U. S. Consul at Jerusalem. We had hoped for his company during the journey, but he was unable to leave his post at that season owing to the great number of American travellers in Jerusalem. We thus lost his valuable experience of the country east of the Jordan, in the knowledge of which he is not equalled by any traveller, having spent many years in studying its archæology, geography, and natural history.

We had great difficulty in arranging for animals to carry our impedimenta and ourselves, as the horses and mules not actually on the march with travellers were all at grass. At last, however, we arranged, through Cook's agency, for the nine animals required, and for a cook, and the stores necessary for a twenty-days' tour. But as there was no hope of our getting off on that or the following day, we had time to see so much of Dr. Merrill's fine collection of bird and animal skins as was not already packed to be shipped. It is, perhaps, with the exception of that of Canon Tristram, the most complete in the world for Palestine. Among other varieties he has the skin of an otter from the Jordan and a wolverene from the wilderness of Judea; also a lizard from the Syrian Desert, about a yard long, of which a specimen (unnamed) exists in the museum of the Syrian Protestant College. The number and variety of birds' skins is very great. This collection is now at Andover, in the United States.

Thursday, April 22.—Barometer: B., 27·36; W., 27·12; mean, 27·24. The morning was filled up with arrangements for the journey. Among others, we secured the services of Sheikh Felah Nimr, and his brother, 'Ali Nimr, of the tribe of 'Adwân Arabs in Northern Moab, to conduct us as far as Ma'în on the following terms:—

1st. Three medjeedies (silver) a day during the period of our stay in the dominions of their tribe.

2nd. Should we go further to the southward, as, for example, to Callirrhoë or Kerak, four medjeedies a day.

3rd. They should have no claim to food, but would expect an occasional invitation to a meal. (This practically means that they expected to live off our table.)

4th. At the end of the journey they are to have 5 lbs. of coffee and the same quantity of sugar as a gratuity.

5th. In case of our wishing to pursue our journey into the territories of the Arabs of Gilead, Sheikh Felah agrees to make an arrangement with Sheikh Shibly of that tribe at the same rate.

To confirm our bargain, one Turkish lira was paid down on the spot, and although no contract was written Dr. Merrill assured us that all would be as verbally agreed. We merely noted down the terms as a memorandum to ourselves.

I then made the circuit of the city walls, and found a flora somewhat peculiar to such localities, as Sisymbrium pumilum, Silene apetala, S. racemosa, Willd., Lepidium sativum, Linum Hælava.

A feature of these plants is that they are more or less stunted by the thinness of the soil and the exposure to the sun. I was unable to complete the circuit of the walls as I had once before done, owing to the peculiar fanaticism of the Moslem pilgrims caused by the return of the sacred banner from Nebi Musa. The annual pilgrimage to Nebi Musa is of modern origin, and was devised by the Turkish Government as an offset to the Christian and Jewish ceremonies of Easter and Passover. For the convenience of the pilgrimage, which would have been difficult, if not impossible, had the shrine been on Nebo, where it ought to be, the story was invented that Moses fled from his impending fate on Nebo, crossed the Jordan into the wilderness of Judea, and was not overtaken by the Angel of Death until he reached the site of the present shrine. During Holy Week the peasants throng into Jerusalem from all directions, and march to the sound of drums and pipes and singing down to Nebi Musa, which is situated on a rocky ledge above the Dead Sea, about three-fourths of the way from Jerusalem to the plain. Each company of pilgrims sacrifices a lamb, and eats it with singing and dancing. The banner, furnished by the Turkish Government, which has been taken down by a squad of Turkish cavalry, is escorted back also by the motley throng of pilgrims, and as the procession files around the shoulder of the Mount of Olives, at the very spot where we may fancy the children meeting our Saviour with their hosannahs, it is greeted with salvoes of artillery, posted at St. Stephen's Gate, and the shouts of the multitudes on the hillsides overlooking the Valley of Jehoshaphat and on the walls and towers of the city. The scene has points of resemblance to the triumphal entry of our Lord which make it extremely suggestive, and is one of the most striking spectacles of Passion Week.

Late in the afternoon our riding horses were brought for trial. The Orientals are extremely unfeeling in the matter of riding and loading animals with sore backs; almost all the horses brought for trial had bad ulcers under the saddle pads. At last, after rejecting a considerable number of animals, we found some with backs which, by dint of special padding to avoid the sore places, could bear the saddle.

In the evening I had the pleasure of an introduction to Professor Lewis, of the Committee of the Palestine Exploration Fund, with whom I

had a conversation in regard to the projected journey, and also in respect to the desirability of establishing in connection with the College at Beirût of a library of reference composed of works bearing on Oriental research, and a museum of Biblical archæology and natural history for the use of scholars who may wish to pursue their studies in the East.

Friday, April 23.—Barometer: B., 27·38; W., 27·16; mean, 27. No journey in the East can be begun without a controversy the first day in regard to the loads, no matter how explicit has been the bargain; the muleteers always pronounce the loads too heavy, and hope by delays at the last moment to force the traveller to take an extra animal or two. With a little firmness and patience, however, we were under way at half-past nine in the morning.

The vegetation along the road from Jerusalem to Jericho is the same as that of the table-land of Palestine until about half an hour before reaching Khan Hathrûrah, when the desert types suddenly begin to appear. The first of these plants that is met is Statice Thouini, then Chenolea Arabica, Erodium glaucophyllum, Fagonia mollis and F. grandiflora, Glaucium corniculatum. At Khan Hathrûrah the mean of the barometer was 29·04, which makes it a little below the level of the sea. This Khan, on the supposed site of the inn where the good Samaritan left the man who had fallen among thieves, had been rebuilt since my visit in 1882. A large quadrangular enclosure has been provided for the accommodation of beasts, while a substantial row of arched chambers and an open court take the place of the ruined building of former days.

The change of flora after passing the Khan is striking and almost complete. Only a few ubiquists remain to remind one of the vegetation of the hill country and plain, which is replaced by such plants as Zygophyllum album, Haplophyllum longifolium, Allium Hierochuntinum, Gypsophila Rokejeka, Matthiola oxyceras, Diplotaxis Harra, Centauria eryngioides, Pteranthus echinatus, Gymnocarpum fruticosum, and Galium Judaicum. On arriving at the plain, Zizyphus Spina-Christi, Balanites Ægyptiaca, Solanum coagulans, Boerhavia plumbaginea, and Loranthus Acaciæ become the characteristic plants.

We arrived at the New Bridge at 7 p.m. Barometer: B., 31·6; W., 31·5; mean, 31·55. Our tents were pitched, and the appetising savour of our dinner was puffing out from beneath the lids of our tinned-copper cooking vessels. The flimsy trestle-work bridge, built of the wood of the Jordan valley, may last for a few years, but looks as if the slightest freshet would sweep it down the stream. Two red-legged storks were perched on the top of one of the marl hills, a little to the left of our road as we came into camp, but too far away for a shot, and it was too late to stalk them.

The birds of the day were Passer domesticus, Corvus monedula, Turtur auritus, T. sp. Sylvia sp., Saxicola leucomela, Alauda cristata, Pterocles Senegalus, Accipiter nisus, Lanius collurio, Falco tinnunculus, Neophron percnopterus, Gyps fulvus, Columba livia, Caccabis chukar. We also bagged a few lizards, which have not as yet been studied.

Saturday, April 24.—Barometer, a.m.: B., 31·55; W., 31·58; mean,

31·565. While the horses were being saddled, and the camp struck, I occupied the time in botanizing in the jungle along the river. Zollikofferia mucronata, Bromus brachystachys (fine specimens over a yard high), Tamarix Jordanis, Glycyrrhiza glabra, Nitraria tridentata, Lolium rigidum, Asparagus Lownei (specimens with spurred leaves [in the original description by Baker, founded upon the specimens in Kew Herbarium, which I have since seen, there are no spurs]), Lolium rigidum (annual specimens, but in full fruit), Populus Euphratica (now past fruiting—I obtained fine fruiting specimens the next day in Wady Nimrîn).

After some bickering between the bridge-tender and our muleteers we crossed into the plain of Shittim. The caravan turned south-eastward toward Tell el-Hammâm, while we rode a little north of east toward Nimrîn. A few hundred feet from the bridge, Dr. Kay shot a bushy-tailed rat, which has not as yet been studied.

The characteristic plants met with in crossing the plain were Statice Thouini, S. spicata, Balanites Ægyptiaca (Zakkûm), Calotropis procera ('Ushîr), Solanum coagulans (Fikkîs), Zizyphus Spina-Christi (Sidr or Nebk), the berries of which are edible, Mesembryanthemum nodiflorum, Atractylis cancellata, Tunica Arabica, Matthiola oxyceras.

We lunched at the waters of Nimrîn, and took a rest under the shade of a Nebk tree from the almost tropical heat. We then skirted the Moabite hills, and to our disappointment at the time, reached our camp at Tell-el-Hammâm, at the early hour of 3 p.m. Tell-el-Hammâm is twenty minutes distant from Tell Kefrein, in the valley of the Umm-Hadhar (pronounced by the Arabs M'Hadhar). Our tents were pitched on a hillock just above a morass formed by the water of the Umm-Hadhar, a most insalubrious site, which had been chosen by the obstinacy of our guide, Sheikh 'Ali, who always showed himself less accommodating than his brother, Felah. It had been our intention to encamp at Tell-er-Ramé, an hour further on. As the tents were already pitched, we concluded to make the best of the situation, especially as the swamp gave good promise of game and plants.

The birds of the day had been Lanius lahtora, Coracias garrula, Coturnix communis, Buteo vulgaris, Accipiter nisus, Sylvia atricapilla, S. Rüpellii, Crateropus Acaciæ, Carduelis elegans, Alauda cristata, Ammoperdix Heyi.

We plunged into the swamp, and secured Alcedo Smyrnensis, Oriolus galbula, Lanius Nubicus, L. lahtora, Buteo vulgaris, Turtur auritus. A herd of six wild swine ran down from the opposite bank into the swamp. Presently the Arabs shot a sow, which furnished us at once with a valuable skin, and a good supply of pork.

The swamp also gave us Asparagus stipularis, both the type and the var. brachyclados, Saccharum Ægyptiacum, Populus Euphratica, Salix sp. (near alba), and at its border we found Periploca aphylla, not heretofore found in the Ghor, and fine specimens of Retama Rœtam in fruit, also Trigonella Arabica and Daucus Jordanicus, Post (a new species).

The warm spring from which Tell-el-Hammâm takes its name, is on

the hillock opposite that on which our camp was pitched, in a south-easterly direction. It is a spring of foul, ill-smelling water, with a temperature of 100° F.; gas, which we had no means of testing, rose in bubbles from the muddy bottom. Around the pools were numerous plants of Phelipea lutea, and overshadowing them a thicket of Salvadora Persica, but differing from the type in its long linear-oblong leaves, many of them four or five inches long. Dr. Merrill argues that these were the springs visited by Herod, rather than the almost inaccessible, though more potent, springs of Callirrhoë.

In addition to the insanitary condition of our camp, we were subjected to another annoyance of a botanical character. The whole hill on which we were encamped was covered with a luxuriant crop of Stipa tortilis, then in full ripe fruit. The seed of this plant is about a third of an inch in length, and furnished with a needle-like point and retrorse hairs. The long awn is covered with barbed hairs, and sticks fast in the meshes of any fabric with which it comes in contact. Our clothes, bedding, tents carpets, and wrappings became filled with these needle-like seeds, which tormented us with incessant pricks and scratches. A large part of our time was spent in the vain endeavour to get rid of this pest. Not until several days after we left this camp, and only by dint of incessant picking over of our clothes, tents, and bedding, did we finally clear them all out.

Barometer at 9 p.m.: B., 30·66; W., 30·7; mean, 30·68.

Sunday, April 25.—We spent a quiet day in camp. Barometer, 7 a.m. B., 30·8; W., 30·75; mean, 30·775. In a walk which we took in the afternoon we observed, on the hill behind our camp, abundance of Lygai pubescens, new for this region. The thermometer at noon stood 92° F. in the shade of our tent, but in the afternoon the heat was moderated by a cool breeze. We saw numbers of wild pigs and many birds during the day. They feed at this season on the barley, and take for dessert the berries of the Nebk. 7.30 p.m., Barometer, B., 30·63; W., 30·65; mean, 30·64.

Monday, April 26.—We were up betimes, refreshed by the needed rest of the Sabbath. Travellers and explorers lose no time by keeping the day of rest. Six a.m., Barometer, B., 30·72; W., 30·68; mean, 30·70. More wild pigs.

While the caravan was being loaded I took the accompanying sketch of the range of Jebel Neba.

The whole range bears the name of Jebel Neba. Jebel Sîâghah is its western spur. Of these peaks more anon.

Before starting I noted Notobasis Syriaca, Allium Hierochuntinum.

We started at 6.30 a.m. for Tell-er-Ramé, leaving the train to take the direct road to Ma'în. An hour of shooting and botanizing among the Sidr trees brought us to Tell-er-Ramé. The hill is one of the landmarks of the Ghor, and has on its summit two whitewashed tombs, and many graves. Excavations would probably reveal ancient ruins, as is almost always the case with these isolated truncated tells in the East. Near it

base is a series of pits for storing grain. They are from four to six feet across, and six or eight feet deep. Bits of broken pottery project from the walls of these pits quite to their bottom. It would seem that for a

General View of the Nebo Range.

Jebel Sîâghah. Jebel Neba. Jebel El-Maslubîyah.

The Shittim Plain.

considerable depth the soil is full of sherds, the accumulation of many centuries of *débris* in the neighbourhood of human habitations. Our guides assured us that the grain stored in these pits is quite safe from rats and moisture. The Arabs cover the floor of the pit with cut straw (tibn), fill it to the level of the ground with grain, cover the grain with more straw, and then heap a mound of earth over all to a height of some feet above the surface of the soil. The wheat of all the trans-Jordanic region is stored in this way.

The road from the Ghor to 'Ayûn Mûsa is steep and stony. At the foot of Tell-er-Ramé I found Convolvulus pilosellæfolias, Desr., a straggler from the distant plains of Mesopotamia, also Polypogon maritimum and Beta vulgaris, var. maritima, all new for this inland maritime plain. Gradually as we ascended, the flora changed. At first we met with the plants of the wilderness of Judea—Haplophyllum longifolium, Allium Hierochuntinum, Centaurea eryngioides, Ricinus communis; presently, Pimpinella eriocarpa (with fruit resembling that of Psammogeton). Soon we began to discover the characteristic plants

of the western slopes of the Palestine range — Chrysanthemum segetum, C. coronarium, Senecio vernalis, Scolymus Hispanicus, Emex spinosus, Aphodelus fistulosus, A. microcarpa, Urginea maritima, Linaria Chalepensis, Chenopodium murale, Beta vulgaris, Salvia Horminum, Rhamnus Palæstina, Atraphaxis spinosa, Erodium cicutarium, Geranium rotundifolium and G. molle, Cichorium Intybus, Hordeum murinum, H. bulbosum, Piptatherum miliaceum, Pistacia Terebinthus, var. Palæstina, Saccharum Ægyptiacum, Arundo Donax, Capparis spinosa, Calendula Ægyptiaca, Filago prostrata, Polygonum aviculare, Juncus maritimus, Scabiosa prolifera, S. argentea, Bromus scoparius, Nerium Oleander, Gundelia Tournefortii, Ononis antiquorum, O. Natrix, Carrichtera Vellæ, Rhagadiolus stellatus, Ballota saxatilis, Teucrium Polium, Dianthus multipunctatus, Convolvulus althæoides, Ephedra campylopoda, Muscari comosum, Diplotaxis Harra, Brassica Tournefortii, Dactylis glomerata, Erodium gruinum, Falcaria Rivini, Anchusa strigosa, Linum pubescens, Fumaria micrantha, Hymenocarpus circinnatus, Avena sterilis, Ajuga tridactylites, Helianthemum salicifolium, Scrophularia xanthoglossa, Pallenis spinosa, Asteriscus aquaticus, Sonchus oleraceus, Umbilicus horizontalis, Veronica Anagallis, Hyoscyamus aureus, Iris Sisyrhinchium, Lamium moschatum, Carduus argentatus, Galium tricorne, Parietaria officinalis, Caucalis leptophylla, C. tenella, Poterium spinosum, Adonis autumnalis, Ornithogalum Narbonense, Trifolium tomentosum, T. stellatum, Silene racemosa, S. Atocion, Chætosciadium trichospermum, Lagæcia cuminoides, Ranunculus Asiaticus, R. myriophyllus, Sedum Palæstinum, Linum striatum, Biscutella Columnæ, Valerianella vesicaria, Fumaria parviflora, Lathyrus Aphaca, Geranium lucidum, G. tuberosum, Lythrum Græfferi. These, with many others, will serve to give a picture of the floral panorama which unrolled before us as we ascended to 'Ayûn Mûsa.

At 'Ayûn Mûsa we found wild figs almost ripe. In fact some of them were already mellow enough to be eaten.

This fact may shed light on the incident of the barren fig tree, as it was hardly too late for a late Passover season.

We arrived at the fountain at 11.30 a.m. Barometer at the level of the cave, B., 28·5 ; at upper cave, B., 28·45 ; W., 28·4 ; mean, 28·425.

Hanging from the roof of the cavern are splendid fronds of Adiantum Capillus-Veneris, and on its floor fine specimens of Scrophularia macrophylla, and below the cavern S. Michoniana.

We lunched at the southernmost of the fountains, and then started for the summit of Jebel Sîâghah, which stood up boldly above us. As we are making the ascent let us review the question of Moses' point of view, for the last time, of the promised land which he was not to enter.

We will assume as a fixed point of departure, what perhaps is nevertheless uncertain, that Jebel Neba is Mount Nebo. Sheikh Felah, our guide, who has taken most of the travellers through Moab in recent years, says that the whole mountain mass which looms up above Wady 'Ayûn

Mûsa is known by the name of Jebel Neba, as that to the south of it is known by that of Jebel el-Maslubîyah. Khurbet Sîâghah is the name of the ruin which crowns the prominent shoulder of this mass which looms above 'Ayûn Mûsa, and overlooks the Shittim plain, but does not include the highest rounded summit of Nebo. Moses was in the Shittim plain when commanded to ascend Nebo, to רֹאשׁ הַפִּסְגָּה the top of the hill, or the top of Pisgah, making the latter a noun proper—the hill, *κατ' ἐξοχην*. If we suppose, as is altogether probable, that he started from the neighbourhood of Tell-er-Ramé, his road would lie as ours did by 'Ayûn Musa, and up the flanks of Jebel Sîâghah, to its top, and thence to the summit of Nebo (the top of the hill) where he met his fate. It is impossible to conceive that he did not continue to pause and cast back his eyes from time to time during the ascent. He would instinctively turn westward at each winding of the road, and look back over the Shittim plain where the great host was encamped; at the green poplars and willows of the Jordan banks, with the silvery water flashing in places through their dense foliage, then across to the glaring desolate rocks of the Judæan wilderness; as he rose higher and higher he would discover the green hills of Palestine. When he reached the bold headland of Sîâghah he would linger to take in the wonderful foreground in which the whole host would now be visible filling the plain, the northern third of the Dead Sea, the Jordan Valley, to the cleft at the bottom of which he knew lay the Sea of Tiberias (albeit invisible from this point of view), and the whole profile of Palestine. Neither from this point, nor from the top of Nebo, which is about 350 feet higher, could he literally see the Mediterranean. The including of the great sea in the prospect must be taken in the same sense as the seeing of all the land. No mountain in Moab is high enough to enable one to see the Mediterranean over the hills of Palestine, nor to see anything but the eastern declivity of those hills and their profile against the western sky.

From Sîâghah Moses would naturally go on to the *top of the hill*, about a mile away, and 350 feet higher. Here his range of vision, although losing the immediate foreground of the Ghor, and the host of Israel encamped there, would take in a more comprehensive profile of the promised land across the Jordan, and in addition the surrounding hills of Moab. Here, if Neba be Nebo, should be placed the site of his last glimpse of the land of Canaan, and of the world in which he had sinned.

The criticism which derives Pisgah from Sîâghah does not find any support in the genius of the Semitic languages. All Hebrew and Arabic words contain three, or at most four, radicals. Those of Pisgah are פסג. Those of Sîâghah are ص = ס ي = י غ = ע. To derive סוע from פסג follows no known principle of derivation, and cannot be maintained.

Furthermore, there is a fatal scriptural objection to making the *top of*

the hill רֹאשׁ הַפִּסְגָּה Sîâghah. Balaam (Num. xxiii, 14) ascended to this point, *i.e.*, the *top of the hill* רֹאשׁ הַפִּסְגָּה, and from it he saw only the outskirts of the Israelitish camp. Furthermore, it was the express object of taking him there, to prevent him from seeing the whole camp. Had his point of view been Sîâghah he would have seen the whole host and not its borders only, whereas from the top of Nebo he would see only the outlying detachments, while Sîâghah would hide the main body from his view. We may suppose that it was likewise the object of Jehovah in taking Moses to the top of Nebo, to spare him at the last moment the pain of seeing the host of his brethren, and so mitigate the sorrow of parting.

The attempt to derive Zoar from Sîâghah falls to the ground, from philological as well as scriptural reasons. The radicals of Zoar are צוער, while those of Sîâghah are ص ي غ = סיע. Moreover, Sîâghah is much too far off from any assignable site of Sodom to suit the narrative.

Our consideration of the walk of Moses would be incomplete, did we forget that he was quite familiar with every coign of vantage for obtaining the best view of Palestine. It must be remembered that Moses made the top of Nebo the first objective in his march into the northern Moab. The host of Israel rolled up the slope of the table-land to the crest of the highlands, and looked over into the promised land. He then addressed himself to the conquest of the country of Heshbon and Elealeh, and then pressed forward into Gilead and Haurân. Weeks, or perhaps months, were occupied in the subjugation of these extensive districts, and much time afterward in rebuilding the cities and putting everything in a posture to favour to the utmost the passage of Reuben, Gad, and the half tribe of Manasseh, across the Jordan with their brethren. During this period Moses and the leaders of the host, doubtless ascended every prominent peak from Nebo to Jebel Kuleib (spelt in the Arabic with ق not with ك), and saw in detail, over and over again, all the panorama of Palestine, and he likewise saw, from the mountains of Bashan, Lebanon and anti-Lebanon, and the Damascus plain, all of which belonged to them by inheritance, clear to the entering in of Hamath northward of Lebanon and anti-Lebanon, and had been searched out as lawful territory by the spies. In going up Nebo from the valley of the Jordan, Moses was to take a *last*, not a *first*, look, and that over scenes now become familiar to him and his people.

Our conversation has lasted longer than the ride from 'Ayûn Mûsa to Sîâghah, and we are on the first of the two shoulders of which the headland is composed. We arrived at 1.20 p.m.; barometer: B., 27·68; W., 27·65; mean, 27·665.

There are somewhat extensive ruins on this shoulder. Among them we found Ferula communis, and Crambe Hispanica.

The view from this point is indeed comprehensive and impressive. It includes the hill country of Judea, the Mount of Olives directly opposite (now crowned with a minaret), the land of Ephraim, Ebal, and Gerizim, and the hill country of Galilee. In the foreground is 'Ayûn Mûsa, the valley of the Jordan, and a considerable part of the Dead Sea. The heights of Nebo cut off all the view to the east. The ruins consist of a deep vaulted chamber, surrounded by rubble walls now fallen and shapeless; also a well with a curb stone. It may well have been one of the many high places of Baal, found all over the country. (*Cf.* Num. xxii, 41.)

We crossed over to the other shoulder of the headland, on which Lieutenant Steever had erected a stone heap as a memorial of his visit. Barometer: B., 27·66; W., 27·63; mean, 27·645. It lies south-west of the other. We found there fine specimens of Allium Erdelii, and Paronychia argentea. The view is substantially the same as that from the northern peak, but a little more extensive.

The two shoulders of Sîâghah suit well the narrative of Balaam. From the northern summit of Sîâghah, which is, perhaps, the high place of Baal mentioned at Num. xxii, 41, he would obtain a comprehensive view of the Israelites encamped in the plain. From the southern summit he would gain a still more comprehensive one. Both summits have ruins, which may be those of high places of Baal. Just below the top of Nebo, above Sîâghah, is an undulating *wheat field*. This may be the *field of Zophîm on the top of the hill*, ראש הפסגה, and from the top of the hill he would see the outer part of the Israelites' camp and no more (*cf.* Num. xxi, 20, where Pisgah is again mentioned). The heights of Sîâghah effectually hide the foreground of the plain as appears from the accompanying sketch.

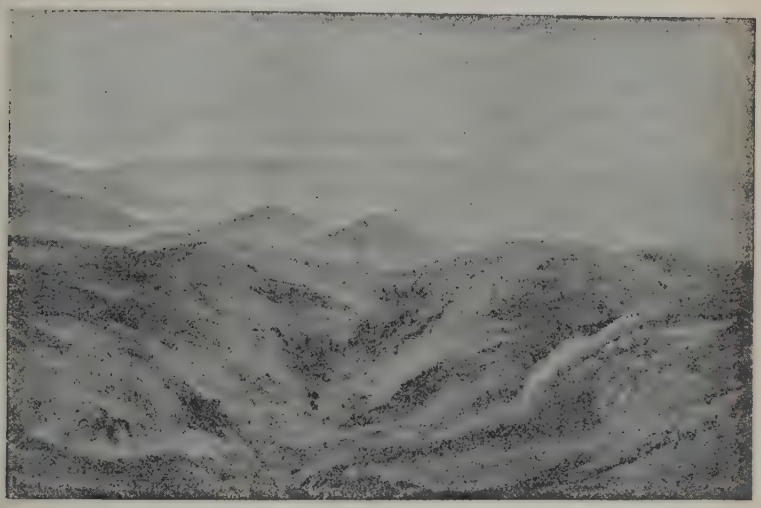
After spending an hour on the peaks of Sîâghah, we rode up to the *top of the hill*, crossing what may have been the field of Zophîm, and reaching the summit at 3 p.m. Barometer: B., 27·26; W., 27·28; mean, 27·27. The view from this point takes in less of the north and south of Palestine than that from Sîâghah, also less of the Dead Sea, and none of the Shittim plain, but includes all the great features of Palestine even better than that from Sîâghah, and also the adjacent regions of Moab. It was by moving from point to point that Moses would take in every possible impression of the landscape, never more to be seen by him.

As soon as we had passed over the summit of Nebo we were in the rolling table-land of Moab. On that side there is no mountain. Scenery, fauna, and flora suddenly changed. The ridge, which is from the side of the ghor the summit of a mountain range, is from that of Moab the brow of the table-land, only slightly elevated above the general level. Nebo, from that direction, is only one of the many waves of that rolling prairie which stretches away to the Euphrates and Tigris, and beyond them to Beloochistan.

The table-land of Moab is destitute of trees, and, with the exception of Mâdeba (Medeba), which is a Christian village, and 'Ammân (Rabbath Ammon), which is a Circassian colony, has no human habitations, except

the black goats' hair tents of the Arabs. As it is for the most part devoted to grazing, the effect of the landscape is dreary and monotonous. We found Iris Sari, Astragalus callichrous, A. Alexandrinus, both the type and var. elongatus, Barbey, Rhaponticum pusillum.

Sketch of a Portion of Moses' Last View from Nebo.



N.B.—The two prominent peaks in the centre are those of Jebel Sîâghah. The white to the left of them is the head of the Dead Sea. The plain to the right is that of Jericho. The mountain range along the horizon is that of Judea and Southern Samaria. The most prominent peak, just over the left summit of Sîâghah, is the Mount of Olives. The plains of Moab are hidden by the shoulders of Sîâghah.

The birds of the day were Lanius lahtora, L. Nubicus, L. auriculatus, Passer domesticus, Sylvia atricapilla, Accipiter nisus, Columba livia, Alauda cristata, Saxicola œnanthe, Melanocorypha calandra, Oriolus galbula, Buteo vulgaris, Coturnix communis, Ciconia alba, Alcedo Smyrnensis.

At 5 p.m. we arrived at Ma'în, the ancient Baal-Meon, and encamped at a little distance from the eastern foot of the tell, by the ancient cisterns, one of which still holds water. Barometer, 6.30 p.m. : B., 27·14 ; W., 27·06 ; mean, 27·1. Nothing about the present ruins indicates high antiquity. There are, however, numerous cisterns cut in the rock, beneath the surface.

Sheikh Felah, our guide, is a man of about 50 years of age, of medium stature, with a mild countenance and gentle speech. He is the

most decided gentleman whom we met among the Arabs. He has a small box full of well-earned testimonials from the distinguished travellers whom he has conducted through Moab. As soon as we arrived at Ma'în, he rode off to arrange for our visit the next day to the hot springs at Callirrhoë. This lies within the territories of the Hamîdeh Arabs, and the 'Adwân dare not conduct a stranger into their lands.

Tuesday, *April* 27th, 6 a.m.—Barometer: B., 27·16; W., 27·05; mean, 27·105. Taking an early start, we soon began our descent toward the deep chasm of the Zerka Ma'în. The first part of our way lay over the rocky rolling ground of the plateau. Within an hour we passed an encampment of the Hamîdeh. It consisted of a single row of tents with the openings toward the east. The usual array of dirty children, barking dogs, and slatternly women presented themselves. They offered us milk to drink, but as we had just taken our coffee we declined.

The flora was, for the first part of the way, the same that we had encountered in coming up the mountain the previous day, but reversed in order. On arriving at the level of the sea, we began to meet the peculiar plants of the Ghor and the deserts: Erodium hirtum, Linaria Hælava, Centaurea, sp., growing on the hot rocks near the road. As we went further down we collected Alcea rufescens, Chardinia xeranthemoides. At the top of the last hill before arriving at the amphitheatre of Callirrhoë, we met fine specimens of Cleomia trinervia, then Blepharis edulis (not before noted here), Reaumuria Palæstina, Withania somnifera (a variety with long peduncles), then Ochradenus baccatus, Helianthemum Lipppii, var. micranthum, Frankenia pulverulenta, Moringa aptera, with panicles of fragrant flowers, Acacia tortilis, Phœnix dactylifera, Tamarix mannifera, Dæmia cordata, with its curious twining stems, Fagonia glutinosa, Pentatropis spiralis, Forsk., growing by the side of the hot water with its sulphury-yellow flowers,[1] Trichodesma Africanum, Aizoon Canariense, Iphionia juniperifolia, Tetrapogon villosum, Atriplex leucocladum.

The barometers at the main spring at Callirrhoë were: B., 30·20; W., 30·28; mean, 30·24. The principal springs were partly covered with poles and branches of trees, over which the Arabs lie and spread over themselves their thick lambskin cloaks, that they may swelter in the steam bath. The temperature of the principal spring was 138° F. There were several Arabs at the spring at the time of our visit, who had come for the sake of the steam baths. One of them was a young man with Hodgkin's disease (swelling of the lymphatic glands of the neck), and others were afflicted with various diseases, principally rheumatic. They had killed a lamb just before our arrival, and were seething the flesh in sour milk (lebben). The head and intestines were immersed in the hot spring to be parboiled before being cooked in the pot.

[1] This plant would seem to be the *Crucifer* alluded to by Tristram in his "Land of Moab," as no other plant with sulphur-coloured flowers grows by the water. It is, however, an *Asclepiad*, not a *Crucifer*.

I enquired of the Arabs what they knew about these springs. One of them informed me that "Our Lord Solomon" had brought these springs out of the rock. I asked him how Solomon got here over the frightful descent over which we had just come. He informed me that there were good roads through the country in those days. How an invalid like Herod could have reached them is a mystery. There is no trace of any road better than the present one, and down it an invalid could only be brought in a palanquin.

We remained for a couple of hours in the stifling atmosphere, and then set out on our return. As we started the Arabs at the spring attempted to extort black mail. We left the Sheikh to do the talking, simply assuring them that we would pay them nothing. Orientals are best dealt with through a mediator.

Our ride down had taken four hours. The return occupied five and a half, although we stopped but little to collect on our way back. We had expected to return up the wâdy, but found that it was quite impossible to go up its bed. As a detour along the brow of the cliffs which overhang it would have been very long and fatiguing, and we had no provisions for a bivouac overnight by the way, we returned over the same road by which we had come. The climb out of the gorge was excessively fatiguing, and not until we reached the breezy plateau did we regain the elasticity which the stifling air of the valley had quite taken away. On our arrival in camp we found that one of our Arabs was going to Jerusalem early in the morning, and, tired as we were, we were glad to avail ourselves of the chance to write to our friends at home.

The birds of the day were Ciconia alba, Coturnix communis, Caccabis chukar, Merops apiaster, Passer domesticus, Alauda cristata, Calandrella brachydactyla, Saxicola œnanthe, Lanius Nubicus, L. collurio, Corvus frugilegus, Milvus, sp. Coracias garrula, Ammoperdix Heyi. Two leopards were reported by the Arabs as seen the previous day on the way to the springs.

Barometer, 8 p.m. : B. 27·15 ; W. 27·05 ; mean, 27·10.

Wednesday, April 28.—Barometer, 7 a.m. at camp : B. 27·16 ; W. 27·13 ; mean, 27·145. We went up to the top of the ruins, and found the barometer there B. 27·1 ; W. 7·03 ; mean, 27·065.

The ruins are a confused mass, consisting almost wholly of the remains of the mediæval town, with few, if any, marks of antiquity. A few of the vaulted chambers seem to be used at times as residences, or as stables for cattle.

Before leaving I botanized around the camp, but found nothing of special interest. Our train took the direct route to 'Ain Hesbán, while we struck across the plain in a direction east of north toward Madeba (Medeba). We soon encountered large tufts of Stipa Lagascæ, the awns of which are sometimes ten or eleven inches in length. We also met with large tufts of Phalaris Canariensis, also Glaucium Aleppicum, with large orange-coloured blossoms, Iris Sari, Astragalus Alexandrinus, var. elongatus, Barbey.

From a distance Medeba presents a somewhat striking appearance, but the illusion is dissipated on entering the town. Yet among blind men a one-eyed man is king. Medeba is the only inhabited village on the Moab plateau, and, although the houses are of rough stone put together without mortar, and unplastered or simply daubed with mud, yet, by contrast with the goats'-hair tents of the Arabs, they are pleasing to all but Bedawîn, whom nothing can induce to live within walls. The town contains about a thousand souls, all nominal Christians of the Greek and Latin rite. The complexions of the people are many shades lighter than those of the Bedawîn, and some of the young girls are quite fair and tolerably pretty. We visited the Latin Church, a dismal enough sanctuary as compared with those of civilised countries, and yet an elevating and educating force in such a desolate land as Moab. One can understand better in such circumstances the tolerance in the Divine plan of error and partial truth, when they are antagonised with more radical error or total ignorance like that of the modern Moabite Arabs. We could not but remark what Christianity, even in its imperfect form, had done for Medeba.

The reservoirs of Medeba are on a grand scale, and well preserved. That on the south side is 110 metres in circumference, and could easily be repaired for use again. Those to the east and north are smaller, but also well preserved.

After a few purchases of chickens, eggs, and bread, we turned our faces northward toward Hesbân (Heshbon), which loomed up on a high swell of the table-land. About an hour from Medeba we came to a group of cisterns under the ground, and some subterranean vaulted chambers, one of which was quite extensive and elaborate. These ruins are known as El-Kufeir-esh-Shurki. I am not aware of any biblical or classical site to which they can be referred. The vaults appear to be mediæval. We took our lunch under one of these vaults by the side of the underground chamber above alluded to. Our supply of water being exhausted, we drew a little from one of the cisterns which still holds water, but it was so muddy that we only used it to wash our hands after our lunch. On the waste soil above the vaults we found Astragalus cruciatus.

From El-Kufeir-esh-Shurki we reached Hesbân in an hour. From the ruins of this fortress a fine view is obtained of the whole plateau of Moab and the mountain range which culminates in Jebel Husha' (Osha'). The present ruins are not of high antiquity, and it is a difficult task for the imagination to restore to the reservoir to the east of the castle the beauty which made the fishpool of Heshbon a suitable simile for the eyes of Solomon's bride.

From Heshbon we crossed the plane to El-'Al (Elealeh), a shapeless mass of ruins, at the top of which is another of the stone heaps raised by Lieutenant Steever when establishing his base line for the triangulation of Moab. We have already noted one at the top of the southern shoulder of Jebel Sîâghah. Dr. Kay started a fox on the top of El-'Al, but he proved too foxy for us, and escaped among the ruins. From El-'Al we

dropped down to our camp at 'Ain Hesbân, below the crest of the plateau. As soon as we crossed the brow of the table-land we again encountered the familiar flora and rocks of the maritime slopes of the Palestine range and of Lebanon.

We found our tents pitched in a meadow by the stream which flows from 'Ain Hesbân, not at the fountain itself. The water, however, was cool and clear, and very abundant. It was delightful to hear the murmuring of a brook in such a dry and thirsty land. The plants of the day were, in addition to those noted, Astragalus hamosus, Geranium tuberosum, Veronica Syriaca, V. Cymbalaria, Coronilla scorpioides, Medicago scutellata, Adonis Palæstina, Allium Neapolitanum, Lagurus ovatus, Trifolium scutatum, T. clypeatum, Mercurialis annuus, Scandix Pecten-Veneris, Salvia Verbenaca, Silene inflata, Nasturtium officinale, Anthemis altissima.

The birds of the day were Ciconia alba, Coturnix communis, Caccabis chukar, Passer domesticus, Alauda cristata, Calandrella brachydactyla, Melanocorypha calandra, Columba livia, Yunx torquilla, Emberiza miliaria, Saxicola sp., Milvus sp., Accipiter nisus, Corvus frugilegus, Passer Moabiticus.

Barometer at our camp at 7.30 p.m. : B., 27·56 W., 27·58 ; mean, 27·57.

Thursday, April 29, 6 p.m.—Barometer : B., 27·51 ; W., 27·48 ; mean, 27·495.

During the evening and night the clouds had rolled up heavily, and a few drops of rain fell. The barometer likewise fell during the night. On arriving in camp the night before we had found Sheikh 'Ali, the brother of Sheikh Felah, who gave us rather a sulky greeting. We were not sorry to learn that he was not to accompany us the next day. He is every way inferior as a guide to his polite and good-natured brother, Felah.

The morning was still threatening, so we rolled up our plant presses in the tent carpets to protect the specimens in case of a shower. We sent on our train by the direct road to 'Ammân, while we went around by 'Arak-el-Emîr. We turned northward, and passed over a spur of the mountain to Wâdy Na'ûr. Our road lay for an hour through a beautiful park-like country, sparingly wooded with Quercus coccifera and Q. Ægilops, and the ground everywhere beset with Poterium spinosum. We also saw Styrax officinale, and a pure white-flowered form of Anchusa strigosa. A lark started up from under the horses' feet, flew a few paces, and alighted in the grass. I dismounted, and almost succeeded in catching it. But suddenly it rose, flew a little distance to lead me on. Dr. Kay then tried a distant shot, but did not hit it, and then the bird flew away out of our sight. Doubtless this was a ruse to protect its young.

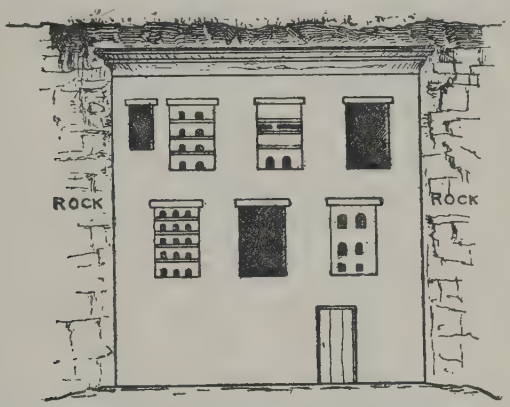
At half-past 11 we arrived at Kasr-el-'Abd, the ruin by 'Arak-el-Emîr. Barometer : B., 28·23 ; W., 28·27 ; mean, 28·25. The air was exceedingly stifling and oppressive. Among the ruins we collected Trichodesma Boissieri, Post, a new species with softer indument than T. molle, Cerinthe major, Pisum

elatius. Overpowered by the glare and heat, we were glad to leave these ruins, where the mid-day sun cast no shadow, and made our way toward Wâdy-es-Sîr. We rode up to the caverns of 'Arak-el-Emîr, or Stabl 'Antar, which are now used as cattle-pens, and the talus of manure accumulated at their base overgrown with rank specimens of Notobasis Syriaca, taller than a man on horseback. The cliffs above the caverns are full of turtle doves. Daûd bagged three at one shot. As we passed into the beautiful Wâdy-es-Sîr, Dr. Kay stalked and shot a jay, and presently afterward a hawk. The valley is park-like, with here and there groves of trees, Quercus coccifera, Pyrus Syriaca, Amygdalus communis, Pistacia Terebinthus, intermingled with open glades and cultivated fields. After half an hour's ride up the valley we sat down to lunch under an evergreen oak, Qu. coccifera, by the side of a small mill-sluice, and ate our lunch. All around were fine specimens of Scilla hyacinthoides, with long, spike-like racemes of blue flowers. After shooting a few birds, we rode on up the beautiful valley of Es-Sîr (Tyrus). The upper part of the valley is well wooded on both slopes, mostly with Quercus coccifera. Half-way from 'Arak-el-Emîr, to the head of the valley, high above its left flank in the face of the cliff, is a rock-hewn dove-cote, of which the accompanying sketch will serve to give an idea. The length and breadth of the façade are each about 19 feet. At the bottom is a doorway, which is supplied with a rough wooden door. Some of the windows are entirely open, and others have the original rock pierced with pigeon holes, as indicated in the drawing. The cote is three storeys high, originally with rock floors, which are now for the most part broken away, and in part replaced with rough wooden beams overlaid by brush. A rock-column of an oblong shape, 13 feet 4 inches long and 3 feet 5 inches wide, occupies the centre of the building, as indicated in the accompanying sketch of the ground plan of the second storey. In each storey were six tiers of nests chiselled out of the walls and central column, affording in all accommodation for many hundreds of birds. Being alone, and half an hour behind the party, I had not time to count the number of these nests. At the time of my visit there were no pigeons there, and as there were no persons near from whom to make inquiries, I could not ascertain whether it still served its ancient purpose or no. From the door at the lower entrance, and the existence of a sort of pen in front and traces of manure about, I suppose that the ground floor is now used as a fold for sheep, and the upper for sleeping places for the shepherds. Who excavated it, and when, I have no means of surmising. There was no inscription on the façade or on the rocks near by. This dove-cote had been noted before by Lieutenant Conder, in an unpublished manuscript, of which I have heard, but have not seen, but has not yet been figured in any publication so far as I know.

On the sloping hillside, beneath the dove-cote, in the rich soil, was a large number of Trachelanthus (Cerinthopsis) pereana of Paine, which seems to me not to differ specifically from the specimens of T. Kurdica in Boissier's herbarium. The single very imperfect specimen of the

latter plant in Kew herbarium differs somewhat from Paine's plant, but is too fragmentary to exhibit the specific characteristics. A little further up the valley I collected, on a shady bank, fine specimens of Ajuga

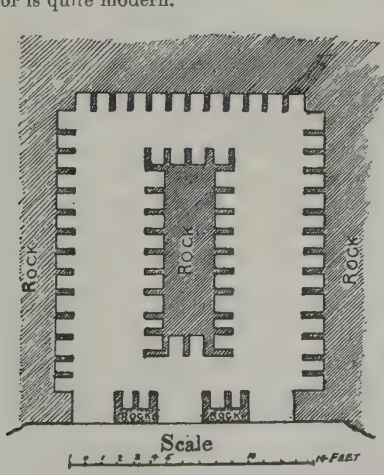
FACADE OF ROCK-HEWN DOVE-COTE IN WÂDY-ES-SÎR.



The lower cut represents the ground plan of the second storey of the same, showing the arrangement of the niches for nests. The central column is of the original rock, left as the pillars in mines to support the roof, and utilised to increase the capacity of the cote.

The upper floor is similar to the middle. The lower is also similar but has no windows.

The wooden door is quite modern.



Orientalis, with large rounded bracts. Further on, large specimens of Cyperus longus, and more Trachelanthus Kurdica.

Near the head of Wady-es-Sîr is a new village of Circassian refugees, laid out with regular streets, neat little cottages, and an air of thrift quite anomalous in this land.

From the romantic scenery of Wady-es-Sîr to the bleak plain of Moab, at its head, is a sudden and not agreeable transition. The dreary rolling upland, with no trees, and no relief to the eye but the numerous black goats'-hair tents, wears a featureless aspect, which was the more tiresome to us, as we were no longer rewarded with new and interesting plants, and in fact added nothing to our presses or our game bag. We were very glad when, at about 5 p.m., we arrived at 'Ammân. We found, however, to our disappointment, that our muleteers had pitched on a marshy plain by the great spring of the Zerka, which here bubbles out of the gravel, and flows in a broad sparkling stream through the town. As the camp at this place, beside its unhealthy situation, is half a mile from the ruins, and cut off from a view of them by a sharp turn in the valley, we made up our minds to move the tents to the brow of the hill south of the town, which commands a panoramic view of the ruins and the surrounding hills. While awaiting the re-establishment of our camp Dr. Kay shot a rock owl, which tried to escape by dropping into a cavity among the ruins. A Circassian boy crawled down into the crevice and fished him out with a hooked stick. It was 9 o'clock before we were settled in our camp, and our dinner was of the scantiest, but we were amply repaid for the drawbacks of our removal by the fine outlook over the town. The new Circassian village built among, and in part over, the ruins greatly mars their picturesque appearance, and as it has also been built at the expense of the materials furnished by the ancient buildings, it has largely contributed to their degradation. A generation or two of Circassian occupation will probably complete the destruction of Rabbath Ammon.

Barometer at camp on brow of hill: B., 27·05; W., 27; mean, 27. The birds of the day were Corvus monedula, Lanius auriculatus, L. Nubicus, Garrulus glandarius, Upupa Epops, Corvus cornix, C. frugilegus, Actites hypoleucas, Saxicola œnanthe, Turtur auritus, Columba livia, Alauda cristata, Gyps fulvus, Neophron percnopterus, Milvus, sp., Accipiter nisus, Merops apiaster, Ceryle rudis, Fringilla, sp.

Friday, April 30, Camp.—Barometer: B., 27·2; W., 27·15; mean, 27·175. At top of modern Circassian village: B., 27·33; W., 27·33; mean, 27·33.

The great abundance of fish in the stream only half a mile below the spring in which it takes its origin, suggests the idea of a subterranean spawning ground. In the morning, before we started, two boys brought between them three strings, with about a hundred fish, to sell. Unfortunately we had no arrangements to preserve them, and carried away no specimens. The source of supply must be a very abundant one to allow of such a catch at one time. In point of fact the whole stream is alive with them.

After an hour spent in examining the ruins in detail, we started

westward across the dreary plain toward Es-Salt. Salvia acetabulosa, Orchis tridentata, O. saccata, Fumana glutinosa, and a few of the roadside ubiquists, were all that we saw until we cleared the plain and began to cross the spurs at the edge of the table-land. In passing through a scrub recently cleared I found Orchis punctulata, var. sepulchralis, quite new for the Levant ; the sepals and petals of the specimens found were pallid and greenish-nerved. Beyond this scrub we came upon a wooded ridge, an hour and a half south of Es-Salt. Quercus coccifera was the principal tree. Here I found Limodorum abortivum, parasitic on the roots of Arbutus Andrachne and the oaks (new for this region) ; also Hesperis pendula, Piptatherum holciforme, Milium vernale, Arrenatherum elatius, Cephalanthera ensifolia, Smyrnium Olusatrum, Cistus villosus, Lonicera Etrusca, Ervum lenticula, Pinus Haleppensis, Papaver Argemone, Rubia tinctoria, Anagyris fœtida, Carum ferulæfolium, Astragalus cretaceus. As we left the woods and passed over the naked rocky spurs we again encountered the roadside ubiquists, which accompanied us fairly within the outskirts of Es-Salt, where our tents were pitched on a shelf of rock, thinly covered with earth, under the Latin cemetery.

The birds of the day were Passer domesticus, Sylvia atricapilla, Columba livia, Corvus cornix, C. frugilegus, Upupa Epops, Caccabis chukar, Melanocorypha calandra, Merops apiaster, Calandrilla brachydactyla, and Anthus campestris.

The savory welcome of the steam of our dinner saluted our nostrils as we passed the cook's tent. We had scarcely seated ourselved before our eyes were greeted with the welcome sight of Dr. Elias Saba, a medical graduate of the College at Beirût, who is acting as medical missionary of the Church Missionary Society at Es-Salt, where he is the associate of Pastor Jemel, the devoted incumbent of that parish. Dr. Saba, with true oriental hospitality, had brought us a lamb, a most welcome addition to our larder, which had been rather a scanty one since we had used up the last of our wild pork. He conducted us to the Turkish postal and telegraph station, where we sent a despatch to Beirût, which, however, was not delivered there until the afternoon of the following day, and the answer did not reach us until after forty-eight hours.

Es-Salt is built on both sides of a steep ravine, so that in many places the roof of one house serves as a platform in front of the one next above. Overlooking the town is a castle, now disused, and partly fallen into ruins.

Before dinner we dismissed our 'Adwân guides. A more courteous, obliging, and satisfactory guide than Sheikh Felah would be difficult to obtain.

Barometer at camp, 6 p.m. : B., 27·23 ; W., 27·2 ; mean, 27·215.

Saturday, *May* 1, 6 a.m.—Barometer : B., 27·27 ; W., 27·2 ; mean, 27·235. Taking an early start we went, in company with Dr. Saba, to botanize over the top of Jebel Husha' (the Arabic form of Hosea : it is not Ausha, as some have spelled it). The road winds up by an easy ascent. Andrachne telephioides, Cerinthe major, Rhus coriaria, Cyno-

crambe prostrata, Marrubium cuneatum, Convolvulus Scammonia, Alyssum campestre, Hypericum crispum, Anarrhirum orientale, and the ubiquists. Near the top we found Onobrychis aurantiaca (immature), Astragalus Christianus, Limodorum abortivum, parasitic on Arbutus Andrachne, Sisymbrium Columnæ, Valerianella truncata, Lolium sp. At a point near the top is the wely of Nebi Husha'. Barometer: B., 26·48; W., 26·43; mean, 26·455. It is a rectangular whitewashed building, 50 × 25 feet, constructed of rubble stone, with the inevitable dome. Within it is the tomb of the prophet, 31 feet long. The Moslem tradition makes all the prophets and saints exceedingly tall, and their height increases in a direct ratio with their antiquity. The tomb, as is usually the case, was draped with green cloth in a somewhat tattered condition, and sundry rags which had been hung there by the devout. To the east of the weli is a Moslem cemetery, overshadowed by a magnificent Quercus coccifera.

The top of Jebel Husha' is divided into three peaks, two of which lie along its western brow, overlooking the Ghor, and the other to the north-east. From the southermost of the western peaks (Barometer: B., 26·27; W., 26·23; mean, 26·245) is seen the finest panorama of the opposite table-land of Palestine obtainable, far finer than that from any part of Jebel Neba, including Siaghah. It takes in the heights above Hebron, the hill country of Judea, Benjamin, Ephraim, Galilee, and Hermon. From the north-eastern peak (Barometer: B., 26·22; W., 26·19; mean, 26·21) may be seen the whole circle of the Promised Land, including the trans-Jordanic region. I noted the Hauran range, Jebel 'Ajlûn, Hermon, the mountains of Galilee, Samaria (the cleft of Nablus is exactly opposite), Carmel, the hill country of Judea, Moab to Jebel Shihân, and the rolling country which forms the watershed between Moab and Gilead on the west, and the Syrian desert on the east. From this peak the Ghor and the eastern declivity of the Palestine table-land is hidden by the two western peaks. Were I seeking for a "Nebo," or "the top of a hill," over against Jericho, from the summit of which the most comprehensive as well as the most detailed view of the whole Promised Land might be obtained, I would choose Jebel Husha'. I am doubtful whether the name Neba may not be an accommodation of the Arabs to the wishes of travellers. Certainly nothing but the name entitles it to the preference over Jebel Husha' as the site of Moses' last view. The north-western peak is precisely the same height by barometer as the south-western, and gives the same view with a little of the Dead Sea cut off by the other peak, from which it may be seen to its extreme southern end.

The birds of the day were Lanius collurio, Upupa Epops, Carduelis elegans, Sylvia curruca, S. atricapilla, Anthus campestris, Coracias garrula, Saxicola sp., Garrulus glandarius, Corvus sp., Caccabis chukar.

6 p.m., Camp.—Barometer: B., 27·2; W., 27·16; mean, 27·18.

Sunday, May 2, Camp, 7 a.m.—Barometer: B., 27·25; W., 27·12; mean, 27·185.

Pastor Jemel has gathered about him a considerable congregation of

Protestants in that secluded town, and ministers to them in a most acceptable manner. At his request, after the morning service had been read, I preached to them in Arabic, and a more attentive and devout audience one could not wish to see. As we came out of church a telegram was handed to me; it was a reply to the one I sent to Beirût two days before. Telegrams from Es-Salt go by way of Nabulus, and if they arrive in the evening they cannot be sent until the next day.

After service a great crowd of sick and impotent folk collected in the dispensary, and we spent some hours in caring for their diseases and wounds—a practical exhibition of Christianity worth more than many sermons in the evangelisation of the world.

Pastor Jemel has given special attention to the question of the sites of Penuel and Succoth. He thinks that the former should be at El-Hârât, where there is an ancient ruin, and Succoth at El-Kheimât, which is the Arabic for *Booths* = *Succoth*. He does not regard either Es-Salt or Gerash as Ramoth-Gilead. He was not prepared to commit himself to any theory as to the site of the latter. He thinks, however, that El-Mastabah, between Es-Salt and Gerash, is Ramoth-Mizpah, which, in his opinion, cannot be Kal'at-er-Rabadh.

In the evening we took a walk up to the castle. Barometer: B., 26·85; W., 26·91; mean, 26·88.

Monday, *May* 3.—Camp at Es-Salt. Barometer, 7 a.m.: B., 27·23; W., 27·14; mean, 27·185.

We secured the services of a guide to take us as far as Irbid, at the edge of Haurân. His name was 'Ophnân, which signifies *putrid*. Orientals usually give names having some signification, oftentimes a very singular one. One boy in the Lebanon was called Jidri (*Small-pox*), on account of an epidemic of that disease which prevailed at the time of his birth. While we were waiting for the mules to be loaded a crowd of people gathered around us for medical treatment, and I amused myself and my patients by doing an eye operation for one of them.

Dr. Saba rode with us to the top of the pass over Jebel Husha', where we sat for a few minutes under a large Quercus coccifera, and then bade good-bye to civilised society before plunging into the land of Gilead.

Our road down Jebel Husha' lay through groves of the above-mentioned oak, Arbutus Andrachne, and Pinus Haleppensis. The open glades were now green with barley and wheat. Besides our ubiquist plants, we met with Fumana Arabica and F. glutinosa, Arum hygrophilum, Helicophyllum crassipes, Colladonia crenata. On reaching the ford of the Jabbok, we met with Lotus tenuifolius, L. lamprocarpus, Astragalus epiglottis, Typha latifolia, and Lythrum Græfferi. We took a refreshing bath in the Jabbok while awaiting our convoy. This *brook* is a noisy, turbulent stream, which at this season was almost a river.

The climb up the opposite hill proved a stiff one. A little way up we met with Andropogon hirtus. Several times the loads were brushed off backwards in the narrow passes of the road, or were pushed away by projecting branches, and had to be untied and carried on the backs of the

muleteers beyond the obstruction. We found nothing of interest on the hillside until near its top, where we fell in with Plantago lanceolata, var. altissima, nearly 3 feet high, Orchis sancta, and Polygala Monspeliaca. Botanically speaking, this was the least productive day of all our journey. Just before entering the village Daûd shot a large wild cat, the only one we saw during our journey. Two gazelles were startled by the mules, but made off too quickly to be shot.

The birds of the day were Turdus merula, Accipiter nisus, Neophron percnopterus, Sylvia atricapilla, Corvus monedula, Merops apiaster, Garrulus glandarius, and a considerable number of small birds seen, but not shot.

We arrived in camp at Burmah at a little before sunset. Barometer: B., 28·03; W., 27·98; mean, 28·005. Our tents were pitched in a grove of olive trees, by a rivulet which carries water to the village and adjacent fields.

Tuesday, *May* 4.—Camp at Burmah, 6.30 a.m. B., 28·03; W., 27·98; mean, 28·005. We had passed a restless night, the air being hot and dry. We again divided our party, the mules and baggage taking the straight road to 'Ajlûn and we making a detour by Gerash. Our guide, 'Ophnân, proved ignorant of the road, and we lost our way several times. We kept nearly on a level, along the ridge which forms the left flank of the Wadi-Zerka. As we did not follow the road, we often had to force our way through rocky scrubs. We passed pomegranate bushes, Tulipa Oculus-solis, Celtis Australis, Calystegia sepium, Torilis triradiata, Alsine decipiens, and Ceratonia siliqua. After an hour we sighted the wretched village of Jejazi, a little distance below our path. It is difficult for one not accustomed to botanizing on horseback to appreciate the difficulty of collecting in the East. The restive horse, accustomed to go steadily behind his fellows from morning till night, is quite unable to comprehend why his rider should dismount every few minutes while he plucks up some insignificant weed. He tugs at the bridle, neighs at his companions, paws the ground in his impatience, and often, taking advantage of an unguarded moment, breaks away and starts off at a full gallop, leaving the botanist to follow as he may on foot, and pick up his saddle-bags or their contents strewn along the road.

Our morning's ride gave us, in addition to the afore-mentioned, Anacamptis pyramidalis, Ophrys apifera, Silene juncea, Bongardia chrysogonum.

The first view of Gerash is imposing, and the impression grows as one examines the ruins in detail. The left bank of the stream, opposite the ruins, is occupied by a flourishing Circassian village. On the aqueduct bridge I found a Celsia heterophylla growing between the chinks of the stones. Its nearest-known neighbours grow near 'Aintab and Marash. Dr. Kay shot a bird on top of one of the columns of the Temple of the Sun. As it fell on the edge of the capital he could only get it by sending a well-aimed rifle ball through the edge of the stone, splintering off a small fragment, which carried the bird clear over the other side of

the column. It fell minus a few feathers, and now graces the College collection ; it proved to be Merops Ægyptiacus.

We lunched at the great fountain. While there we received an urgent invitation from the Kaimakam to take a cup of tea with him, but, knowing the delays and ceremonies of such visits, we respectfully declined, and as soon as possible took up our line of march toward Sûf and 'Ajlûn. Soon after leaving Gerash we passed a Viscum cruciatum, parasitic on Cratægus Azarolus. Presently the wind veered around to the west, and after the parching heat of the forenoon we had a cool and refreshing breeze for the remainder of the day. Soon we found Trifolium physodes on a shady bank by the roadside ; then a new Æthionema (Gileadense, Post), but unfortunately only one specimen, and in a state too advanced for perfect description.

Soon we found a new Scrophularia of the scattered sparsely-leaved division (S. Gileadensis, Post), a new species well characterised by its large, almost globular flowers, and small scattered, laciniate leaves. After passing Sûf we entered a scrub similar to that of the morning, with plenty of red and white rock rose. Farther on we encountered open groves and grassy glades, in one of which we discovered Anthriscus sylvestris. The last hour of our ride was through romantic scenery, at one point through a pass with precipitous moss-covered rocks on either side, crowned with trees and fringed with over-hanging shrubs. From this beautiful glen we emerged rather abruptly into the clearing around the village of 'Ain-Jenneh, opposite which our camp was pitched.

The birds of the day were Columba livia, Turdus merula, Turtur auritus, Buteo vulgaris, Coracias garrula, Garrulus glandarius, Corvus frugilegus, Saxicola œnanthe, Alauda cristata, Emberiza cæsia, Monticola cyanus, Lanius auriculatus, Corvus cornix, Philomela luscinia.

Our camp lay in a green meadow, opposite the imposing Kal'at-er-Rabadh. Barometer : B., 27·48 ; W., 27·37 ; mean, 27·425.

Wednesday, *May* 5.—Camp at 'Ain-Jenneh. Barometer : B., 27·44 ; W., 27·33 ; mean, 27·385. The fall in the barometer during the night corresponded with signs of rain in the sky and air. Fearing for our collections we left the tops of our tents standing over our luggage, with strict injunctions to the muleteers not to take them down until we gave the signal from the top of the hill. We then rode up to the castle (Kal'at-er-Rabadh). Our road lay up a rocky hill, wooded with oaks. Under the trees we found Erysimum scabrum, new for this region, Bellis perennis, Trifolium Boissieri, and in the tank near the castle Ranunculus aquatilis, var. submersus.

The view from the top of the castle (barometer : B., 26·64 ; W., 26·50 ; mean, 26·57) includes a large part of the Dead Sea, Jebel Husha', the whole of the range of Palestine, *Southern Lebanon*, Hermon, all of the Jordan valley except the portion just to the west, which is cut off by a spur of the hill. Galilee is seen with special distinctness. Haurân and Eastern Gilead are not visible from this point. The special interest of

the surrounding region centres in the life of Jephthah and the tragical end of his ill-fated daughter.

The signs of rain diminishing, we sent our guide down to start the cavalcade, but, with the idiosyncrasy of the country, the muleteers and our cook had pre-judged the case, struck the tents, and were already *en route* before we arrived at the foot of the hill. We were soon engaged again in the defile which leads out of the valley, and then turned to the left and pursued our course through a country diversified with clearings and patches of rocky woodland. The flora was in the main identical with that of the rolling uplands of Western Palestine—Cachrys goniocarpa, Leccokia Cretica, Trifolium erubescens, Medicago pentacycla, Synelcosciadium Carmeli, fine trees of Juglans regia. In a pool half-way from 'Ajlûn to Irbid, I found Alisma natans, not before noted in the Orient.

Just before reaching the watershed between Gilead and Haurân (barometer: B., 26·22; W., 26·15; mean, 26·185) we passed out of the woodland. This watershed was named for us by a passing Arab El-Musaîjah. From this point there is a fine view of Jebel-ed-Duruz and the green plain of Haurân. We left with regret the fine park-like scenery and cool air of the uplands of Gilead and dropped gradually into the plain, and encamped late in the evening at Irbid.

The birds of the day were Ciconia alba, Coracias garrula, Coturnix communis, Caccabis chukar, Buteo vulgaris, B. ferox, Accipiter nisus, Neophron percnopterus, Anthus campestris, Alauda cristata, Merops apiaster, Muscicapa grisola, Passer domesticus. Two large rabbits were seen, but escaped the bag.

Irbid is a postal and telegraph station, and we enjoyed once more the opportunity of communicating with our home. Barometer on the tell overlooking the town: B., 28·03; W., 27·93; mean, 27·98.

Thursday, May 6, 7 a.m.—Barometer: B., 28; W., 27·95; mean, 27·975. There is little of botanical interest to be found around the villages of the great interior plains of Syria. Immense heaps of garbage, and the accumulated refuse of many centuries harbour nettles and gooseweeds, and a few crucifers and grasses. Having soon disposed of these, we started across the great plain toward Der'ah, the ancient Edrei. Even the ruins here are in ruin, and little is left to occupy the antiquarian. But our march across the plain began to reveal the rich and interesting vegetation of Haurân. Astragalus oöcephalus, with white heads as large as a hen's egg, was the most conspicuous plant of the morning. We also collected A. cruciatus, and A. triradiatus. We passed the large root-leaves of summer Umbellifers, Composites, and Scrophulariaceæ, but too little developed for collection. Six weeks later a bounteous botanical harvest could be reaped of species seldom well represented in herbaria, many of them doubtless new to science.

The caves at Der'ah were walled up, and inaccessible without more labour and time than we cared to spend in their exploration.

After lunching at the fountain, and watching our caravan file up the

opposite hill and disappear over its crest, we spent a half-hour in observing the clamour and confusion at the well. A special study of Scripture history, with reference to the incidents and customs connected with the drawing of water, would furnish material for a moderate volume. An hour now and then spent at an oriental fountain will shed a bright ray of light on these customs, and reproduce many of the incidents. Women were drawing water, men were jostling and incommoding them; there was the *beginning of strife*, and, in fact, its middle and end; there were water jars (pitchers), and buckets (skins with a metal or wooden hoop at the mouth); some of the pitchers were broken at the cistern; there were flocks, and herds, and watering-troughs; we went up and asked for water, and they let down their jars from the shoulder and gave us to drink; there were women and men *sitting* by the well.

After this instructive half-hour we set out for our camp, four hours distant. Interesting plants began to increase in number, and the birds led us many a long chase into the fields. In our ardour we wandered too far to the south, and finally reached a pool where we found fine specimens of Butomus umbellatus, and a number of different species of birds, which Dr. Kay and Daûd commenced to shoot. Suddenly a couple of Turkish soldiers appeared over the brow of the hill and rode towards us and asked us with some anxiety whether we had been shooting. They seemed much relieved when we told them yes, and they told us that there were roving bands of Arab robbers in this region, and that it was highly unsafe. They then directed us to the main road, which lay half-an-hour to the north. Crossing the fields we fell in with Allium Schuberti, with its eight to ten-inch long rays, a Linum near L. Austriacum, possibly new Silybum Marianum, Onopordon Illyricum, and O. ambiguum.

The birds of the day were Ciconia alba, Coracias garrulus, Coturnix communis, Caccabis chukar, Buteo fulgens, B. ferox, Accipiter nisus, Nephron percnopterus, Anthus campestris, Alauda cristata, Merops apiaster, Muscicapa grisola, Passer domesticus, Corvus monedula.

At 6 p.m. we reached our camp at Et-Tayyibah. Our course for the afternoon had lain through Wady-Zeid, except during our detour to the southward. Barometer: B., 28·06; W., 27·95; mean, 28·005.

Friday, May 7, 7 a.m.—Barometer: B., 28·08; W., 27·99; mean, 28·045. Only to-day did we fairly realise the wealth of the Haurân flora. In the morning we collected—Linaria Damascena, Reseda Luteola, Lotus Gebelia, Valerianella truncata, V. diodon, Asphodeline Damascena, Salvia acetabulosa, S. molucella, Lathyrus Cicera, which is cultivated under the name of Jilban; and in the afternoon—Astragalus conduplicatus, A. brachyceras, A. triradiatus, A. scorpioides (new for this region), A. Alexandrinus, Mericarpæa vaillantioides, Onobrychis Cadmea, *Teucrium Auraniticum*, Post (new), Smyrniopsis cachroides Cephalaria Syriaca, var. sessilis, Fritillaria Libanotica, Pterocephalus pulverulentus, Smyrnium connatum, and a large number of other plants

heretofore unknown in this region, beside a long list of those heretofore noted, and included in the list at the end of the article.

Our course lay to the south of Wady-Zeid, and the old Roman road which runs through it.

We stopped in the middle of the day to visit the remarkable ruins of Bosrah, and to replenish our exhausted supply of bread. The most interesting object there is the church, cloister, and house of the monk Bahûrah, from whom Mohammed received so many of his ideas afterward embodied in the Koran.

The birds of the day were substantially the same as those of the day before.

Our camp for the night was pitched at a short distance from the village of Kureyah, the first of the district of Jebel-ed-Durûz. Barometer: B., 26·49; W., 26·43; mean, 26·46.

Saturday, May 8.—Camp at Kureyah, 9 a.m. Barometer: B., 26·48; W., 26·41; mean, 26·445. In the place of public assembly of Kureyah there is a portico. On one of the stones is the following inscription, in four lines:—

ΑΤΑΘΗΤΥΧΗ
ΕΚΤΙCΘΗΗΜΛΛΝΕΕΤΟΥCΡϥ
ΤΗCΚϢΛΛΗC⊀ ΚΠΡΟΝΟΝ
ΦΛΚΘΡΗΔΙΑΝΟΥΠΠ

We had passed a stone, evidently a tombstone, with an inscription, in the fields between Bosrah and Kureyah, the preceding day, of which the accompanying figure gives the inscription:—

ΛΛΟΜΙ
ΧΟC
ΛΛΟΜΙ
ΧΟΥ

Qurêyah is the first of the villages of Bashan, which we had seen with stone doors and windows in a tolerable state of preservation. In most of the houses of Haurân and the Jebel-ed-Durûz the roofs are composed of slabs of basaltic stone, laid on stone lintels supported by irregular stone pillars. At Qurêyah we discovered *Ferulago Auranitica*, Post.

We broke camp at Qurêyah at 10 a.m., and began a leisurely march to El-Kûfr, at the base of the volcanic cone of Jebel-Kuleib. About an hour above the village we passed a mill. In the wet ground about the mill-race I found Ranunculus Chærophyllus, and a little farther on, in the muddy soil along the stream, the new species, *Alopecurus involucratus*, Post, which seems a connecting link between Alopecurus and Cornucopiæ. In the neighbourhood of the brook, I found abundance of Aira capillaris and

Melica Cupani, and a little further on, in a field, *Trifolium Alsadami*, Post. The road winds through rocky fields and shrubby places. Under a rock, shortly before reaching el-Kûfr, we met with fine specimens of Anchusa neglecta, and a variety of Alkanna Orientalis, with entire leaves. The only "oaks of Bashan" that we saw during this day were Q. coccifera. About el-Kûfr itself we found thickets of Cratægus Azarolus, C. monogyna, Pistacia Terebinthus, Rhus Coriaria. Growing from the rocks by the roadside were fine specimens of Scrophularia variegata, M. B. var. Libanotica. In the fields we found Salix fragilis, Fumaria officinalis, Alyssum umbellatum, Lithospermum incrassatum. The plain about el-Kûfr, at the base of the cone of Jebel Kulcib, is cut up into quadrangular enclosures by stone fences, which are generally lined by shrubbery. These copses abound in birds.

The bag of the day was Neophron percnopterus, Ciconia alba, Lanius collurio, Emberiza melanocephala, E. miliaria, Linota cannabina, Hirundo rusticæ, Melanocorypha calandra, Sylvia atricapilla, S. orpheus, Hypolaïs elaïca, Buteo ferox, Oriolus galbula, Saxicola œnanthe, Saxicola sp., Muscicapa grisola, Milvus sp., Coturnix communis.

We arrived at an early hour in the afternoon, and encamped in a field just outside the village, by the mountain rill which supplies it with water. The proper name of the village is el-Kûfr, which means *unbelief* or *infidelity*, but as this name is one of ill repute in the East, it is softened in ordinary usage to el-Kefr, which signifies *the village*, and is so found in the maps. An hour to the south is the village of Hebrân, which we did not visit.

The latter part of the afternoon was spent in the much-needed work of sorting our specimens and papers, writing up memoranda and labels, and packing such specimens as were sufficiently dry not to require farther attention. The barometer at 7 p.m. stood : B., 25·50 ; W., 25·43 ; mean, 25·465. A drizzling rain prevented our doing any outside work, and especially from sunning our specimens, which had not been overhauled during the week of travel.

Our camp was in full view of the cone of Jebel Kuleib, of which I made the sketch which appears on the following page.

During the night there was a high wind, but no rain. Sunday, May 9. Notwithstanding the wind of the preceding day, the morning broke clear and bright. Barometer : B., 25·49 ; W., 28·39 ; mean, 25·44. The Sheikh of the village invited us to dine with him, but we declined the invitation. Daûd Salîm, however, went to visit some of his Durûz relations at Sohwat-el-Blât, a village two hours to the north-west, at the base of Jebel Kuleib. He found that they were engaged in the wedding festivities of one of the young men of his family. He gave us the following account of the feast.

After the reception and formalities of salutation, a cup of water was brought to him by an attendant, who also carried a basin, and he was told to pour the water over his right-hand as an act of ablution. A huge platter 6 feet in diameter, made of tinned copper, was then brought in,

on which was piled a mountain of boiled crushed wheat mingled with morsels of boiled meat. When this had been set in place, a dish of melted clarified butter was poured over the wheat until it was quite

Sketch of Jebel Kuleib from el-Kufr.

saturated. Loaves of bread in the form of cakes were placed by the side of the platter, and the guests, rolling up their sleeves, proceeded to help themselves with their fingers, and consumed the provisions, as is usual, in silence. Water and soap were then passed around to the guests, who washed off the remains of their greasy meal, after which coffee and pipes were served. It was not till rather a late hour that he rode back to camp, somewhat fatigued by the ceremonious attentions which he had received. As most of the people of el-Kûfr had gone to the reception, we were unable to assemble them for any religious services in camp.

7 p.m.—Barometer : B., 25·43 ; W., 25·35 ; mean, 25·39.

Monday, May 10th.—Barometer, 5.30 a.m. : B., 25·43 ; W., 25·43 ; mean, 25·43. On this, as on several other occasions, the behaviour of our barometers was such as to cause us to doubt the value of the aneroid for accurate determinations, either in meteorology or height of location. The morning broke windy and cloudy, and we felt many misgivings about the journey of the day, especially as to exposing our collections which, however, we sent around by the short road to Suweidah, while we planned the long journey over Jebel Kuleib and el-Jowalîl, to Konawât and so back to Suweidah.

The first part of the ascent from el-Kûfr to Jebel Kuleib lay through stony fields, with copses of the various shrubs and trees mentioned in the narrative of yesterday. On the way up we collected Cerastium

anomalum, Hypericum scabrum, Poterium verrucosum, Rosa canina, Glaucium Arabicum (a species of which the range extends from Sinai to two days north of Damascus), Hippomarathrum Boissieri, Prangos ferulacea, then a fine new Verbascum (Qulebicum, Post) with cob-webby indument, and a tall stiff compound panicle, Nepeta marrubioides, Muscari longipes, Bromus Haussknechtii, and here and there dwarf specimens of Pistacia Terebinthus (var. Palæstina). The ascent of the cone is steep. The declivity is covered with pumice, and furnishes rather an infirm foothold for the feet of either horses or pedestrians. Half way up the main cone is a small shelf, doubtless once a side vent of the ancient volcano. It is now a low truncated cone with an inconsiderable ruin, which we did not examine, at its apex. The crater at the top is nearly filled up with scoriæ and soil, and lined with a thicket of Pistacia Terebinthus and Quercus coccifera. We found at and near the top an immature species of Dianthus near D. Libanotis, Cotoneaster nummularia, Bromus erectus, and several other plants too immature for determination. The middle or end of June would be the time for the harvest at the top of Kuleib. Passing over the summit and down the northern declivity of the cone we found among the pebbles of pumice Thalictrum isopyroides (quite new for the Levant), Vicia tenuifolia, Geranium tuberosum, Anthriscus nemorosa (new for Syria), Solenanthus amplifolius, Lonicera mummularifolia. Near the base Astragalus Bethlehemiticus, A. Aintabicus, A. deinacanthus, A. angustifolius, Allium Erdelii, Myosotis refracta, M. hispida, Cratægus monogyna.

The barometer at the top of Jebel Kuleib stood : B., 24·37 ; W., 27·43 ; mean, 24·40. The morning was misty and windy, and the air at the top of Jebel Kulêb was raw and searching. The road from Kuleib to el-Jowalîl was over a plateau, with rolling volcanic hills rising confusedly on every side, nearly bare of vegetation. El-Jowalîl (Barometer, 12 a.m. : B., 24·21 ; W., 24·19 ; mean, 24·20), is naked, with the exception of a few scrubby trees, among which we noted an obtuse mucronate-leaved variety of Pyrus Syriaca. The peak has lost its crateriform summit, and is not picturesque or striking in any way. Arab encampments were to be seen in several of the plains between the hills, and flocks of cattle and goats were browsing on the scanty herbage. We found Arabis auriculata, Alyssum Szowitsianum, and Holosteum liniflorum on the top. The wind was so strong that our horses could not face it, and we were obliged to climb rather than walk to the summit. We were glad to get down from the bleak mountain top into the valley to the north of the peak. We followed this valley down to Konawât.

The clouds, which had been threatening us all day, began to pour down rain just as we entered Konawât. We were obliged to make a hasty and unsatisfactory inspection of the magnificent ruins, and found only one botanical specimen of interest, Melissa officinalis. From Konawât to Suweidah we rode in a cold driving rain, and notwithstanding our india-rubber clothing, arrived drenched and chilled to the bone. Fortunately our camp had been pitched before the storm, and our bedding

and collections were dry. We encamped in a field east of the town. We had hardly entered our tent before the teacher of the village school called and politely invited us to dine. In our chilled and wearied state we felt obliged to decline his invitation. In the evening I again tried the telegraph, but with the same result as in all my previous efforts east of the Jordan. We tried in vain to wake up the operator at Damascus, and get the wire through to Beirût. I left my message to go as early as might be in the morning, hoping to receive an answer at Damascus after two days, a hope doomed to disappointment, as our message was two days in arriving. I have known one to be a week in getting from Alexandretta to Beirût.

The barometer at 8.30 p.m. in our camp stood : B., 26·35 ; W., 26·30 ; mean, 26·325.

The birds of the day were Oriolus galbulus, Emberiza miliaria, Anthus campestris, Coturnix communis, Caccabis chukar, Turtur auritus, Ciconia alba, Gyps fulvus, Milvus sp., Calandrella brachydactyla, Alauda cristata, Saxicola sp., Hirundo rustica.

Tuesday, May 11.—Camp at Suweidah. Barometer, 6.30 a.m.: B., 26·38 ; W., 26·33 ; mean, 26·355. The morning rose misty and cloudy, but the sun gradually dispersed the vapour, and partly dried our well-soaked tent. By 9 o'clock we were on our way. The road at first passes between two stone walls. We found at this point Stachys Libanotica, a variety with densely woolly calyx, and an undeveloped Delphinium, probably D. orientale, J. Gay.

After an hour we passed through the village of 'Atîl, with a ruined temple, and later through Suleim. Near the latter we collected Nigella oxypetala, Ranunculus arvensis, L., var. rostratus, Lisæa Syriaca, Turgenia latifolia, Valerianella vesicaria. Soon after leaving Suleim we began to approach the volcanic cones about Shuhba. Just before reaching the old crater to the south of the village we found on the pumice *Centaurea Trachonitica*, Post, a species near to C. Hellenica, but differing in the strigose indument, longer peduncles, and the pappus.

The volcanic centre, by the lava overflow of which the Leja was formed, consists of a series of craters in the neighbourhood of Shuhba. Of these three retain their crateriform shape. The southernmost, El-Gharârat-el-Kiblîyah, is situated south-east of the town. The central is nearly due west. Both of these are black truncated cones, with a funnel-shaped excavation at the top, and sides at an angle of about 30°. The northernmost, Tell-Shîhan, was originally a cone, but the west wall has been forced out by the great lava stream, so that it now resembles a great arm-chair, with its back toward Shuhhba, and its seat toward the lava bed of the Leja, which seems to have flowed principally from this aperture. Around the crater of El-Gharârat-el-Kiblîyah is a wilderness of lava crags and peaks of most grotesque and rugged forms, and almost barren of vegetation. The lonely hollows of this lava waste are the chosen home of partridges. We started a covey of them as we entered the defile which leads up to Shuhba.

The lava stream from these craters is one of the most remarkable in the world. It is of a triangular form, with the apex toward the craters, and the base toward the Jordan valley and Hermon. The sides of this triangle are about thirty miles in length. The surface is like that of a storm-tossed sea, the waves of which have been suddenly turned into stone. Even the foam of the waves is represented in the jagged crests of these grey rock billows. The surface of the Leja is everywhere fissured by tranverse crevasses, in the centre of which are the places of defence and concealment which have given the district its name of *el-Leja=the Refuge*, and which have enabled the Druzes to defy and often to destroy the Turkish forces sent to reduce them to submission. The lava bed of the Leja is the most recent outpour, and overlies the great bed of volcanic rock which extends from northern Gilead to Aleppo.

The ruins of Shuhba are impressive, and very extensive. Among them I found a new Nepeta (*N. Trachonitica*, Post) with fine heads 1½ inch in length and 1 inch in diamener, and pink flowers.

We crossed the broad shallow wâdi which separates Shuhba from Tell-Shîhân. By the side of the torrent, and in its then dry bed, I found Salvia Russelii, a stranger not formerly observed south of Aleppo and Aintâb. The flanks of Tell-Shîhan are steep, and covered with pumice. We found on the way up Gypsophila viscosa (*Prangos melicocarpus*, var. *Trachonitica*, Post) with pruinose leaves and large brown fruits, and at the top, near the weli, Sisymbrium Sophia. The view from the summit is very extensive, embracing all the Leja, the northern part of Haurân, and the southern part of the Damascus plain, and the opposite ranges of Anti-Lebanon, Hermon, and the mountains of Galilee. The range of Gilead shuts off the view to the south. Barometer at summit, B. 26·27.

After enjoying this unique view, we led our horses down the steep sides of the northern face of the cone, and a little before sunset reached our camp at Umm-ez-Zeitûn=the Mother of Olives. Barometer: B., 27·06; W., 27·03; mean, 27·045.

The birds of the day were Milvius Ægyptiacus, Caccabis chukar, Coturnix communis, Saxicola sp., Anthus campestris, Accipiter nisus, Buteo sp., Oriolus galbulus, Ciconia alba, Turtur auritus, Hirundo rustica, Passer domesticus.

Wednesday, May 12.—Camp at Umm-ez-Zeitûn, 6.30 a.m. Barometer: B., 27·13; W., 27·15; mean, 27·14.

We were annoyed in the morning by the petty thefts of the people of Umm-ez-Zeitûn, and were obliged to keep a guard over our portable property, which had not been necessary during all our previous journeys. We were told that thieving ways are quite characteristic of the inhabitants of the Leja, a peculiarity doubtless attributable to their isolated position and political immunities. The number of small articles which they appropriated during the packing of our camp furniture was considerable, and at an earlier stage of our journey would have been much more annoying.

The Leja, with the exception of a little soil formed in the crevasses by the disintegration of the softer sorts of lava, is quite barren. Hence most

of the villages are along its edge, and live by the produce of the fertile plain of older volcanic rock and soil, over which the later desolating stream has flowed. It took us seven hours to pass the eastern side of the great triangle. The villages, mostly in ruins, are all about a quarter of an hour west of the road which separates the barren lava from the wheat-fields. On the way I collected a new Astragalus (*A. Trachoniticus*, Post) near Sowarat-el-Kebirah, and in a wheat-field, to the right of the road near Sowarat-es-Saghîrah, *Malcolmia Auranitica*, Post, unfortunately a single and undeveloped specimen. Otherwise the day yielded nothing of special interest except Allium Sindjarense, and A. Hierochuntinum, until we reached Brak. In crossing the scorched lava beds near that place, I found a well-pronounced variety of Thymus Syriaca, which is described among the new plants. Professor Oliver, of Kew, prefers to regard it and T. Syriaca, Boiss., as varieties of T. lanceolata, Sm. At Brak is a large stone building, erected by the Turkish Government as barracks for the soldiers now quartered there to overawe the Druzes and Arabs of the Leja. The barometer at 8.30 p.m. was B., 27·95 ; W., 27·89 ; mean, 27·92.

The birds of the day were Corvus monedula, Saxicola sp., Pterocles Senegalus, Alauda cristata, Anthus campestris, Emberiza miliaria, Passer domesticus, Saxicola œnanthe.

Thursday, *May* 13.—Camp at Brak, 5 a.m. Barometer : B., 27·97 ; W., 27·88 ; mean, 27·925.

While the muleteers were striking camp at an early hour in the morning, I started alone across the plain in the direction of Damascus. The air was fresh, and my jaded horse was able to gallop to the base of the hills which bound the plateau of Haurân. To the left of the road, on the flanks of Hermon, lay the rocky hills covered with Poterium spinosum, from the Arabic name of which the district takes its name, Aklîm-el-Billân. The look back over the table-land, before entering the chain of hills which separates it from the Damascus plain, is extensive. Beyond the green foreground of the wheat-fields of Brak lies the black, rugged, triangular lava sea of the Leja, and far away at its eastern angle the three craters from which it issued. Still more distant is the jagged range of the Jebel-ed-Durûz, with its numerous volcanic cones, ending in the striking peak of Jebel Kuleib. The plain of Haurân could be distinguished from the intervening Leja by its misty veil, which hid its greenness.

Soon after entering the range of hills, I passed a rounded headland to the left, with a single tree near its top. So striking an object as a tree in this desolate region is sure not to escape the Arabs, who have named the hill Tell-esh-Shajar (Hill of the Tree). I did not turn aside to identify it, but suppose from its shape that it must be one of the many oaks (Qu. coccifera), which form so striking a feature of the landscapes of Syria and Palestine.

The plants of this region are few. I found Lepidium Aucheri near Nedjhah. Haplophyllum Buxbaumii covers the stony fields with a mass of yellow waving flowers. The road, however, passes most of the way through the stony border of the plain, and not until arriving in the

irrigated gardens near Bab-Allah did I find any considerable number of plants. As it was not my object to include in this sketch the flora of Damascus, I did not stop to collect or record the numerous plants growing near the city. At 11.30, I arrived at the Victoria Hotel, where I lunched and remained until the caravan came up, in the middle of the afternoon. Barometer, 12 m.: B., 27·65; W., 27·67; mean, 27·66. Dr. Kay and myself took the night coach to Beirût, and arrived the following morning, after an absence of twenty-four days. Mr. Daûd Salîm assumed charge of the caravan, which arrived safely Monday evening, the 17th, without accident or injury to the collections.

The birds of the last day between Brak and Damascus were Emberiza melanocephala, E. cæsia, Aëdon galactodes, Pterocles Senegalus, Alauda cristata, Anthus campestris, Corvus cornix, Corvus sp., Turtur auritus, T. sp., Passer sp.

It will be seen from the foregoing narrative that the flora of Eastern Palestine differs from that of Palestine proper, in the addition of a large number of the plants of the table-land of Damascus. The considerable number (fifteen species) of new plants, besides many new varieties of well-known species, discovered in so short a journey, encourage the hope that more comprehensive and repeated tours will add very considerably to our list of Oriental plants, as well as contribute to the definition of their range and distribution.

Of the barometric observations, a table of which is appended, I can only remark that it furnishes another illustration of the idiosyncrasies of aneroids, and the inaccuracy of this mode of determining altitudes.

Table of Barometric Observations.

Date.	Hour.	Place.	Browning.	Watson.
April 19	5 p.m.	On boat, going to steamer (Beirût)	30·08	29·90
„ 20	7.30 a.m.	On boat, going to shore (Jaffa)	30·05	29·80
„ 20	10.30 p.m.	Second storey of Mediterranean Hotel, Jerusalem	27·37	27·20
„ 21	7 a.m.	Do. do. do.	27·39	27·19
„ 22	7 a.m.	Do. do. do.	27·36	27·12
„ 23	7 a.m.	Do. do. do.	27·38	27·16
„ 23	7.30 p.m.	New Bridge, Jordan Valley ..	31·60	31·50
„ 24	6 a.m.	Do. do. ..	31·55	31·58
„ 24	9 p.m.	Tell el Hammâm, Jordan Valley	30·66	30·70
„ 25	7 a.m.	Do. do. do.	30·80	30·75
„ 25	7.30 p.m.	Do. do. do.	30·63	30·65
„ 26	6.30 a.m.	Do. do. do.	30·72	30·68
„ 26	12 m.	'Ayûn Mûsa, at level of cave	28·50	—
„ 26	12 m.	'Ayûn Mûsa, upper fountain	28·45	28·40
„ 26	1.20 p.m.	Jebel Siâghah, ruins	27·68	27·65
„ 26	2 p.m.	Jebel Siâghah, south peak ..	27·66	27·63
„ 26	3 p.m.	Jebel Neba, highest point ..	27·26	27·28
„ 26	6.30 p.m.	Ma'în, in camp by cistern ..	27·14	27·06
„ 27	6 a.m.	Do. do. ..	27·16	27·05

Date.	Hour.	Place.	Browning.	Watson.
April 27	12 m.	Callirrhoë, chief spring ..	30·20	30·28
„ 27	8 p.m.	Camp at Ma'în..	27·15	27·05
„ 28	7 a.m.	Do.	27·16	27·13
„ 28	7.30 a.m.	Top of ruins at Ma'în.. ..	27·10	27·03
„ 28	7.30 p.m.	Ain Hesbân, on the stream near the road	27·56	27·58
„ 29	6 a.m.	Do. do. do.	27·51	27·48
„ 29	11.30 a.m.	Kusr-el-'Abd	28·23	28·27
„ 29	8 p.m.	Camp on hill W.S.W. of 'Ammân	27·05	27·00
„ 30	7 a.m.	Do. do. do.	27·20	27·15
„ 30	9 a.m.	At level of highest house in Ammân	27·33	27·33
„ 30	6 p.m.	Camp at Es-Salt, on platform, below Latin cemetery ..	27·23	27·20
May 1	6 a.m.	Do. do. do.	27·27	27·20
„ 1	1.30 p.m.	Height of the Wely on Jebel Husha'	26·48	26·43
„ 1	3 p.m.	Height of the northern peak on Jebel Husha'	26·22	26·19
„ 1	4 p.m.	Height of the southern peak on Jebel Husha'	26·27	26·22
„ 1	6 p.m.	Camp at Es-Salt	27·20	27·16
„ 2	7 a.m.	Do.	27·25	27·12
„ 2	7 p.m.	Castle of Es-Salt	26·85	26·91
„ 3	7 a.m.	Camp at Es-Salt	27·23	27·14
„ 3	7.30 p.m.	Camp at Burmah	28·03	27·98
„ 4	6.30 a.m.	Do.	28·03	27·98
„ 4	7 p.m.	Camp at 'Ajlûn	27·48	27·37
„ 5	7 a.m.	Do.	27·44	27·33
„ 5	8 a.m.	Top of Kal'at-er-Rabadh ..	26·64	26·50
„ 5	12 m.	Height of land on road from 'Ajlûn to El-Husn.. ..	26·22	26·15
„ 5	9 p.m.	Camp at Irbid	28·03	27·93
„ 6	7 a.m.	Do.	28·00	27·95
„ 6	6.30 p.m.	Camp at Tayyibah	28·06	27·95
„ 7	7 a.m.	Do.	28·08	27·90
„ 7	8 p.m.	Camp at Kureiyah	26·49	26·43
„ 8	9 a.m.	Do.	26·48	26·41
„ 8	7 p.m.	Camp at El-Kufr	25·50	25·43
„ 9	7.30 a.m.	Do.	25·49	25·39
„ 9	7 p.m.	Do.	25·43	25·35
„ 10	5.30 a.m.	Do.	25·43	25·43
„ 10	9 a.m.	Top of Jebel-Kuleib	24·37	24·43
„ 10	12 m.	Top of Jebel-el-Jowailîl ..	24·21	24·19
„ 10	8.30 p.m.	In camp at Suweidah	26·35	26·30
„ 11	8 a.m.	Do. do.	26·38	26·33
„ 11	4 p.m.	Top of Tell Shihân	26·27	—
„ 11	7 p.m.	Camp at Umm-ez-Zeitûn ..	27·06	27·03
„ 12	6.30 a.m.	Do. do. ..	27·13	27·05
„ 12	8.30 p.m.	Camp at Brak	27·95	27·89
„ 13	5 a.m.	Do.	27·97	27·88
„ 13	12 m.	Damascus, second storey Hotel Victoria	27·65	27·67

LIST OF PLANTS collected (or, in case of the more familiar species, observed) by the Author during a journey from April 23 to May 11, 1886, principally in Moab, Gilead, and Haurân. As the number of plants not heretofore noted in this region so largely exceeds the rest, they are not generally indicated. Plants found west of the Jordan are only mentioned if new in the region specified; new species and varieties are indicated by italics. The new species and varieties are published in the Transactions of the Linnæan Society for 1888.

I.—RANUNCULACEÆ.

1. Clematis cirrhosa, L. Thickets, Gilead.
2. Thalictrum isopyroïdes, C. A. M. Among pumice gravel on the northern slope of the cone of Jebel Kuleib.
3. Adonis Palæstina, Boiss. Plain of Sharon; table-land of Moab.
4. Aleppica, Boiss. Plain of Sharon.
5. autumnalis, L. Common in Moab, Gilead, and Haurân.
6. æstivalis, L. Ascent from Jordan valley to Moab, Haurân.
7. var. squarrosa, Boiss, Haurân.
8. dentata, Del., var. subinermis, Boiss. Haurân.
9. Ranunculus aquatilis, L., var. heterophyllus, D. C. Haurân.
10. var. submersus, Gr. et Godr. Gilead, Haurân.
11. calthæfolius, Jord. Haurân.
12. Damascenus, Boiss. et Gaill. Haurân.
13. Asiaticus, L. Moab, Gilead.
14. Chærophyllos, L. Haurân.
15. myriophyllus, Russ. Moab, Gilead, Haurân.
16. var. Hierosolymitanus (R. Hierosolymitanus, Boiss). Moab, Gilead.
17. lomatocarpus, F. and M. Everywhere.
18. *arvensis, L., var. rostratus,* Post. Haurân.
19. Ceratocephalus falcatus, Pers., var. exscapus, Boiss. Haurân.
20. Nigella oxypetala, Boiss. Between Suweidah and Shuhbah, Haurân.
21. ciliaris, D. C. 'Arâq-el-Emîr.
22. Delphinium sp., probably Orientale, J. Gay (immature). Suweidah, Haurân.

II.—BERBERIDACEÆ.

23. Leontice leontopetalum, L. Gilead, Haurân.
24. Bongardia Chrysogonum, L. Gilead.

III.—PAPAVERACEÆ.

25. Papaver Rhæas, L., var. Syriacum, Boiss. Moab, Gilead, Haurân. This species includes P. stylatum, Boiss. et Bal., P. umbonatum, Boiss., and P. clavatum, Boiss. et Haussk., and probably P. commutatum, F. et M., and P., polytrichum, Boiss. et Ky., all of which have intermediate forms connecting the series.
26. Argemone, L. Moab, Gilead, Haurân, Damascus.
27. Rœmeria hybrida, L. Moab, Gilead, Haurân.
28. Glaucium corniculatum, L. Khan Hathrurah, between Jerusalem and Jericho.
29. Arabicum, Fresen. Southern slope of Jebel Kuleib ; plain of Damascus as far as Deir 'Atîyah. Heretofore only observed in Sinai.
30. grandiflorum, Boiss. et Huet. Haurân.
31. Hypecoüm procumbens, L. Moab, Gilead, Haurân.
var. grandiflorum (H. grandiflorum, Benth.). Gilead.

IV.—FUMARIACEÆ.

32. Ceratocapnos Palæstina, Boiss. Gilead.
33. Fumaria officinalis, L. Fields near El-Kufr, Jebel Kuleib.
34. micrantha, Lag. Moab, Gilead.
35. parviflora, Lam. Ascent from Jordan to Moab.

V.—CRUCIFERÆ.

36. Matthiola bicornis, Sibth et Sm. Khan Hathrûrah, Shittim plain.
37. oxyceras, D. C. Shittim plain, Callirrhoë. A very variable species. Farther study will probably cause it and M. livida, Del., to be considered as varieties of M. bicornis.
38. Nasturtium officinale, R. Br. Wet places ; Moab, Gilead, Haurân.
39. Arabis auriculata, Lam. Top of Jebel-el-Jowailîl.
40. Notoceras Canariense, R. Br. Shittim plain ; lower slopes of Nebo.
41. Hesperis pendula, D. C. Woods south of Es-Salt. Prof. Paine notes H. secundiflora, Boiss. et Sprun, in the neighbourhood of Jebel Husha', and in the Wady-ez-Zerka. The writer, after much search, failed to find this species either in Gilead or Moab.
42. Malcolmia Africana, L. Plain of Damascus.
43. *Auranitica*, Post. In a wheat-field by the roadside, east of Sowarat-el-Saghîri.
44. torulosa, Desf. Table-land of Moab and northward.
45. var. leiocarpa, Boiss. Haurân.
46. crenulata, D. C. Haurân.

47. Sisymbrium pumilum, Steph. Wall of Jerusalem near Tower of David ; Haurân.
48. Sophia, L. Haurân ; top of Tell Shihân, Wady-el-Karn, Anti-Lebanon.
49. Irio, L. Moab, Jordan valley.
50. Columnæ, Jacq. Gilead, Haurân, Wady-el-Karn.
51. erysimoides, Desf. At the bottom of the descent from Jerusalem to Jericho, at the edge of the plain.
52. Damascenum, Boiss. et Gaill. Wady-el-Karn.
53. officinale, L. Everywhere.
54. runcinatum, Lag. Haurân.
55. Erysimum repandum, L. Moab, Gilead.
56. var. rigidum, Boiss. Moab, Gilead, Haurân.
57. scabrum, D. C. Kal'at-er-Rabadh, Gilead.
58. crassipes, C. A. M. Mountains and table-land of Moab and Gilead.
59. Brassica Tournefortii, Gou. Flanks of Nebo, Moab.
60. adpressa, Mœnch (Hirschfeldia adpressa, Mœnch in Boiss. Fl. Or. I. 390). Common throughout.
61. Sinapis arvensis, L. Moab, Gilead.
62. var. Orientalis, Boiss. Haurân.
63. alba, L. Moab, Gilead, Haurân.
64. *Diplotaxis viminea*, *L.*, *var. foliosa*, Post. Plain of Sharon.
65. var. integrifolia, Boiss. Khan Hathrûrah.
66. Harra, Forsk. Khan Hathrûrah, and thence to Jordan plain. In all the hot wadies opening into valley of Jordan and Dead Sea.
67. *var. glabra*, Post. Wady-el-Karn.
68. erucoides, L. Moab, Gilead, Haurân.
69. Eruca sativa, L. Moab, Gilead, Haurân. This species has, in Syria and Palestine, light-yellow lilac-veined petals. E. Cappadocica, Boiss., would seem, then, to be a variety with somewhat longer pods and larger seeds. The foliage of E. sativa varies, as does that of many crucifers.
70. Carrichtera Vellæ, D. C. Jabbok valley ; flanks of Nebo ; valleys on both sides of Dead Sea and Jordan.
71. Fibigia clypeata, L., var. eriocarpa (F. eriocarpa, D. C.). Jebel Husha'.
72. Alyssum umbellatum, Desv. Roadside in El-Kûfr.
73. Szowitsianum, F. et M. Jebel-el-Jawailîl.
74. campestre, L. genuinum, Boiss. Gilead, Haurân.
75. aureum, Fenyl. Haurân.
76. meniocoides, Boiss. Damascus plain.
77. Capsella Bursa-Pastoris, L. Everywhere.
78. Lepidium sativum, L. Walls of Jerusalem.
79. spinescens, D. C. Gilead, Haurân.
80. Aucheri. Between Nedjha and Tell-esh-Shajar, on the road between Damascus and Brak.

81. Lepidium Draba, L. Moab, Haurân.
82. Chalepense, L. Gilead. Probably a narrow fruited variety of the last.
83. crassifolium, W. K. Merj of Damascus.
84. Æthionema heterocarpum, J. Gay. Gilead.
85. *Gileadense*, Post. In a thicket by the roadside at the edge of the table-land, two hours from Es-Salt.
86. Biscutella Columnæ, Ten. Moab, Gilead, Haurân.
87. Peltaria angustifolia, D. C. Jebel Kuleib, Haurân.
88. Clypeola jonthlaspi, L. Gilead.
89. Isatis Aleppica, Scop. Moab, Gilead, Haurân.
90. Neslia paniculata, Desv. Moab, Gilead, Haurân.
91. Texiera glastifolia. Haurân, Wady-el-Karn.
92. Calepina Corvini, All. Ped. Moab, Gilead, Haurân.
93. Ochthodium Ægyptiacum, L. Moab, Gilead, Haurân.
94. Crambe Orientalis, L. Haurân.
95. Hispanica, L. Moab, Gilead.
96. Rapistrum rugosum, L. Moab, Gilead, Haurân.
97. Enarthrocarpus strangulatus, Boiss. Wady-Zerka-Ma'în.
98. Erucaria Aleppica, Gaertn. Moab, Gilead, Haurân.
99. *var. horizontalis*, Post. Pods horizontal. Nedjha, Damascus plain.
100. Raphanus sativus, L. Everywhere.

VI.—CAPPARIDEÆ.

101. Cleome trinervia, Fresen. On the steep hill side, going from Ma'în down to Callirrhoë.
102. Capparis spinosa, L. Hanging from face of cliffs and walls, common.

VII.—RESEDACEÆ.

103. Ochradenus baccatus, Del. Valley of Zerka-Ma'în, about Callirrhoë.
104. Reseda alba, L. Wady-Kelt, Moab, Haurân.
105. lutea, L. Moab, Gilead, Haurân.
106. muricata, Presl. Wady-Kelt.
107. Luteola, L. Haurân.

VIII.—CISTINEÆ.

108. Cistus villosus, L. Mountains of Moab and Gilead.
109. salviæfolius, L. Mountains of Moab and Gilead.
110. Helianthemum Niloticum, L. Gilead.
111. var. microcarpum, Cors. Lower Jordan.
112. salicifolium, L. Moab, Gilead, Haurân.
113. Ægyptiacum, L. Jerusalem.

114. Helianthemum Kahiricum, Del. Wadies about Dead Sea.
115. *var. depauperatum*, Post. Callirrhoë.
116. Lippii, L. Callirrhoë.
117. var. micranthum, Boiss. Callirrhoë.
118. vesicarium, Boiss. Mountains of Moab.
119. Fumana Arabica, L. Moab, Gilead.
120. glutinosa, L. Moab, Gilead.

IX.—POLYGALEÆ.

121. Polygala Monspeliaca, L. Grassy places, Gilead.

X.—FRANKENIACEÆ.

122. Frankenia pulverulenta, L. Tell-el-Hammâm, Callirrhoë.

XI.—SILENEÆ.

123. Dianthus multipunctatus, Ser. Flanks of Nebo.
124. *var. pruinosus*, Post. On hot rocks below Khan Hathrûrah in Wadi-Kelt.
125. *Auraniticus*, Post. Haurân, between Irbid and Bosrah.
126. sp. probably Libanotis, Labill., but without flowers. At the top of the cone of Jebel Kuleib.
126A. Gypsophila Rokejeka, Del. Hot rocks on road from Khan Hathrûrah to Jordan plain; Haurân.
127. Damascena, Boiss. Table-land of Moab.
128. viscosa, Murr. Tell Shihân.
129. Saponaria Vaccaria, L. Everywhere.
130. oxyodonta, Boiss. Fields, Es-Salt.
131. Silene conoidea, L. Nebo, Es-Salt.
132. macrodonta, Boiss. Tell-er-Ramé, Nebo.
133. muscipula, L. Plain of Sharon.
134. goniocalyx, Boiss. 'Ajlûn.
135. racemosa, Otth. Wall of Jerusalem.
136. apetala, Willd. Wall of Jerusalem.
137. hirsuta, Lag., var. Sibthorpiana, Boiss. Flanks of Nebo. This plant may be distinguished from T. hispida, Desf., by the fact that it has no alar flowers, that its calyx is not contracted in fruit, and the calyx teeth are obtuse.
138. Behen, L. Plain of Sharon, Gilead, Moab.
139. Palæstina, Boiss. Plain of Sharon.
140. Oliveriana, Otth. Es-Salt, el-Ghor, Plain of Moab.
141. bipartita, Desf. Everywhere.
142. Atocion, Murr. Moab, Gilead, Haurân.
143. inflata, Sm. Everywhere.

144. Silene longipetala, Vent. Jebel Kuleib, Jebel Husha'.
145. juncea, Sibth. Gilead.
146. Tunica pachygona, F. et M., var. scabra (T. Arabica, Boiss). Shittim plain, between Nimrîn and Tell-el-Hammâm. This species is also found about Aintâb. The intermediate forms are such as to make T. Arabica an untenable species.

XII.—ALSINEÆ.

147. Holosteum liniflorum, Stev. Flanks and top of El-Jowailîl.
148. Cerastium dichotomum, L. Gilead, Haurân.
149. anomalum, W. K. Jebel Kuleib.
150. vulgatum, L. Moab, Gilead.
151. Stellaria media, L. Everywhere.
152. Arenaria leptoclados, Rchb. Gilead.
153. graveolens, Schreb, var. minuta. Jebel 'Ajlûn.
154. Alsine decipiens, Fenzl. Moab, Gilead.
155. Smithii, Fenzl. Jubel Kuleib.
156. picta, S. et Sm. Nebo, near ruins of Sîâghah ; Haurân.
157. tenuifolia, L. Common.
158. Spergula arvensis, L. El-Ghor.
159. diandra, Guss. El-Ghor, Wilderness of Judea.

XIII.—PARONYCHIEÆ.

160. Herniaria cinerea, D. C. Gilead, El-Ghor.
161. hemistemon, J. Gay. Khan Hathrûrah.
162. Paronychia argentea, L. Common throughout.
163. nivea, D. Moab, Gilead.
164. *var. obtusa*, Post. Ain-Hesban to Ammân.
165. *var. attenuata*, Post. Ain-Hesban to Ammân.
166. Gympocarpum fruticosum, Pers. Wilderness of Judea.
167. Pteranthus echinatus, Desf. Wilderness of Judea.

XIV.—TAMARISCINEÆ.

168. Tamarix tetragyna, Ehr. Damascus.
169. Jordanis, Boiss. At Pilgrim's bathing place, and along the Jordan.
170. mannifera, Ehr. Callirrhoë.
171. Reaumuria Palæstina, Boiss. Wilderness of Judea, Callirrhoë.

XV.—HYPERICINEÆ.

172. Hypericum scrabrum, L. Jebel Kuleib.
173. crispum, L. Jebel Husha'.

XVI.—MALVACEÆ.

174. Alcea acaulis, Cavan. Moab, Gilead, Haurân.
175. setosa, Boiss. Moab, Gilead.
176. rufescens, Boiss. On the road from Ma'în to Callirrhoë.
177. Malva rotundifolia, L. Everywhere.
178. Cretica, Cavan. Moab.
179. parviflora, L. New bridge over the Jordan.
180. oxyloba, Boiss. New bridge over the Jordan.
181. sylvestris, L. Gilead.
182. *var. oxyloba*, Post. Tell-er-Ramé. A specimen of this variety is also found in Kew Herbarium.
183. Malvella Sherardiana, L. Gilead, Haurân.

XVII.—LINACEÆ.

184. Linum strictum, L. Moab, Gilead.
185. nodiflorum, L. Moab, Gilead.
186. Syriacum, Boiss. et Gaill. Moab, Gilead.
187. pubescens, Russ. Moab, Gilead.
188. sp. near Austriacum. Haurân.

XVIII.—ZYGOPHYLLEÆ.

189. Nitraria tridentata, Desf. El-Ghor.
190. Zygophyllum dumosum, Boiss. Lower part of road from Khan Hathrûrah to el-Ghor.
191. Fagonia glutinosa, Del. Callirrhoë.
192. grandiflora, Boiss. Lower part of Wilderness of Judea.
193. mollis, Del. Between Mar Saba and Dead Sea.
194. Peganum Harmala, L. Ascent from el-Ghor.

XIX.—GERANIACEÆ.

195. Geranium tuberosum, L. Ascent from el-Ghor to Nebo.
196. rotundifolium, L. General.
197. molle, L. General.
198. lucidum, L. Ascent from el-Ghor to Nebo.
199. Erodium Romanum, L. 'Ammân.
200. dissectum, L. Moab.
201. cicutarium, L. Moab, Gilead, Haurân.
202. cichonium, L. Haurân.
203. gruinum, L. Moab, Gilead.
204. laciniatum, Cav. Flanks of Nebo.
205. moschatum, L. Moab.

206. Erodium malacoides, L. Gilead.
207. hirtum, Forsk. Hot valleys debouching into Dead Sea.
208. glaucophyllum, Ait. Near Khan Hathrûrah. The size of the leaves in this species varies in different specimens from 5 lines to 3 inches long.

XX.—RUTACEÆ.

209. Haplophyllum Buxbaumii, Poir. Ascent to Nebo, Haurân.
210. var. corymbulosum, Boiss. Shittim Plain.
211. longifolium, Boiss. Hot rocks on both flanks of el-Ghor.

XXI.—SIMARUBEÆ.

212. Balanites Ægyptiaca, Del. Plain of Jericho.

XXII.—TEREBINTHACEÆ.

213. Rhus Coriaria, L. Jebel Husha', Jebel-ed-Durûz.
214. Pistacia Terebinthus, L., var. Palæstina (P. Palæstina, Boiss). Moab, Gilead, Jebel-ed-Durûz.

XXIII.—RHAMNEÆ.

215. Zizyphus Spina-Christi, L. El-Ghor on both sides of Jordan.
216. Rhamnus punctata, Boiss. Moab, Gilead.
Palæstina, Boiss. Ascent to Moab.

XXIV.—MORINGEÆ.

217. Moringa aptera, Gærta. Callirrhoë, on the road to Ma'în, a few hundred yards from the springs. I met with only one tree, and close by it a tree of Acacia tortilis.

XXV.—LEGUMINOSEÆ.

218. Anagyris fœtida, L. Woods south of Es-Salt.
219. Retama Rœtam, Forsk. El-Ghor, and the lower mountains flanking it.
220. Ononis Natrix, L. Moab, Gilead.
221. var. stenophylla, Boiss. Moab.
222. *var. laxiuscula*, Post. In pumice near Shubba, Haurân.
223. Antiquorum, L. Ascent to Nebo.

224. Ononis ornithopodoides, L. Khan Hathrûrah.
225. biflora, Desf. Ma'în.
226. pubescens, L. Gilead.
227. hirta, Desf. Haurân, Plain of Sharon.
228. serrata, Forsk. Ma'în.
229. Calycotome villosa, L. Moab, Gilead.
230. Trigonella astroites, F. et M. Haurân.
231. spinosa, L. Moab.
232. monantha, C. A. M. Haurân.
233. Trigonella Cœle-Syriaca, Boiss. Haurân, var. with pods constricted between the seeds.
234. Hieroslymitana, Boiss. Moab, Gilead.
235. Kotschyi, Fenzl. Moab, Gilead.
236. spicata, L. Moab, Gilead.
237. Arabica, Del. El-Ghor.
238. radiata, L. Haurân.
239. Medicago scutellata, All. Moab, Haurân.
240. rotata, Boiss. Ma'în to Callirrhoë.
241. denticulata, Willd. Gilead, Haurân
242. pentacycla, D. C. Gilead.
243. tuberculata, Willd. Haurân.
244. coronata, Lam. Moab.
245. Trifolium arvense, L. Haurân.
246. stellatum, L. Flanks of Nebo.
247. angustifolium, L. Moab, Gilead, Haurân.
248. Haussknechtii, Boiss. Haurân.
249. *Alsadami*, Post. In a field near the mill above Kureiyah, on the road to El-Kûfr, at the base of Jebel-ed-Durûz.
250. scutatum, Boiss. Moab.
251. clypeatum, L. Gilead.
252. scabrum, L. Gilead.
253. pilulare, Boiss. Moab, Gilead, Haurân.
254. globosum, L. Haurân.
255. physodes, Stev. Gilead, Jebel-ed-Durûz.
256. spumosum, L. Haurân.
257. resupinatum, L. Common throughout.
258. tomentosum, L. Ascent from el-Ghor to Nebo.
259. xerocephalum, Fenzl. Jebel-el-Durûz.
260. repens, L. Moab.
261. Boissieri, Guss. 'Ajlûn, Gilead.
262. erubescens, Fenzl. Gilead.
263. procumbens, L. Gilead.
264. Hymenocarpus circinnatus, L. Common throughout.
265. Lotus Creticus, L. Gilead.
266. tenuifolius, Rchb. Ford of Jabbok.
267. lamprocarpus, Boiss. Ford of Jabbok.
268. Gebelia, Vent. genuinus, Boiss. Haurân.

269. Lotus conimbricencis, Brot. Moab.
270. peregrinus, L. Mountains of Moab.
271. Tetragonolobus Palæstina, Boiss. Moab. This species should probably rank only as a variety of T. purpureus, Mœnch.
272. Psoralea bituminosa, L. Moab, Gilead.
273. Glycyrrhiza glabra, L., var. violacea, Boiss. New bridge of the Jordan.
274. Astragalus epiglottis, L. Ford of Jabbok.
275. tribuloides, Del. Salihîyah, Damascus.
276. cruciatus, Link. Moab, Gilead, Haurân.
277. triradiatus, Bge. Haurân.
278. Damascenus, Boiss. et Gaill. Haurân.
279. callichroüs, Boiss. Khan Hathrûrah. Plain of Moab.
280. conduplicatus, Bertol. Haurân.
281. brachyceras, Ledeb. Moab.
282. hamosus. Moab.
283. scorpiodes. In wheat-fields between Bosrah and Kureiyah, Haurân.
284. cretaceus, Boiss. et Ky. Woods near Es-Salt.
285. vexillaris, Boiss. Bosrah to Kureiyah, near the latter, in a field by the path.
286. Christianus, L. Top of Jebel Husha', near the Nebi.
287. Alexandrinus, Boiss. Moab, Gilead, Haurân.
288. Alexandrinus, Boiss., var. elongatus, Barbey. Moab, Gilead.
289. neurocarpus, Boiss. Bosrah.
290. Bethlehemiticus, Boiss. Moab, Jebel Kuleib.
291. Aintabicus, Boiss. Jebel Kuleib.
292. deinacanthus, Boiss. Woods near Es-Salt; Jebel-ed-Durûz.
293. Forskahlei, Boiss. El-Ghor, 'Ayun Musa.
294. oocephalus, Boiss. Haurân.
295. sanctus, Boiss. Khan Hathrûrah. Moab, Gilead.
296. *Trachoniticus*, Post. Sowarat-el-Kebîrah.
297. angustifolius, Lam. Jebel Kuleib.
298. Dorycnium lamprocarpum, Boiss. Ford of Jabbok.
299. Scorpiurus sulcata, L. New bridge, Jordan.
300. Biserrula Pelecinus, L. Haurân.
301. Coronilla scorpioides, L. Moab, Haurân.
302. Onobrychis Crista.-Galli, L. Everywhere.
303. æquidentata, S. and Sm. Gilead.
304. gracilis, Bess. Moab, Gilead.
305. Cadmea, Boiss. Moab, Gilead, Haurân.
306. aurantiaca, Boiss. Gilead.
307. Vicia sericocarpa, Fenzl. Moab.
308. sativa, L. Everywhere.
309. lathyroides, L. Woods between Amman and Es-Salt.

310. Vicia peregrina, L. Woods south of Es-Salt. Haurân.
311. *Narbonensis, L., var pilosa*, Post. Woods south of Es-Salt.
312. serratifolia, Jacq. Leaves serrate from middle to apex. Haurân.
313. tenuifolia, Roth. Jebel Kuleib.
314. Ervilia, L. Moab, Gilead, Haurân.
315. Palæstina, Boiss. El-Ghor, Moab, Gilead.
316. gracilis, Loisel. Moab, Gilead.
317. Ervum Lenticula, Schreb. Woods south of Es-Salt.
318. Lens, L. Cultivated everywhere, and escaped.
319. Cicer arietinum, L. Cultivated everywhere, and run wild.
320. Lathyrus aphaca, L. Moab, Gilead.
321. amœnus, Fenzl. Moab, Gilead, Haurân.
322. Cicera, L. Haurân.
323. Hierosolymitanus, Boiss. Gilead.
324. Orobus sessilifolius, S. and Sm. Woods south of Es-Salt.
325. Pisum elatius, M. B. Moab, Gilead.
326. humile, Boiss, et Noë. Haurân.
327. Ceratonia Siliqua, L. Gilead.
328. Prosopis Stephaniana, M. B. Jordan valley.
329. Acacia tortilis, Hayne. Jordan valley, Callirrhoë.

XXVI.—ROSACEÆ.

330. Amygdalus communis, L. Gilead.
331. *var. minor*, Post. 'Ayun Musa.
332. Potentilla reptans, L. Gilead.
333. Poterium verrucosum, Ehr. Gilead, Jebel Kuleib.
334. spinosum, L. Common on rocky hill sides.
335. Rosa canina, L. var. coriacea, Boiss. Jebel Kuleib.
336. Rubus tomentosus, Borckh. Moab, Gilead.
337. Syrica, Boiss. El-Jowailîl. A specimen with obtuse obliquely mucronate leaves.
338. Cratægus Azarolus, L. Moab, Jebel Kuleib.
339. monogyna, Willd. Haurân, Jebel-ed-Durûz.
340. Cotoneaster nummularia, F. and M. Jebel Kuleib.

XXVII.—GRANATEÆ.

341. Punica Granatum, L. Gilead.

XXVIII.—MYRTACEÆ.

342. Myrtus communis, L. Gilead.

XXIX.—CRASSULACEÆ.

343. Umbilicus intermedius, Boiss. Moab, Gilead.
344. lineatus, Boiss. Shuhbah, at the edge of the Leja. This should be regarded only as a depauperated cymose variety of U. Libanotica, Labill.

XXX.—LYTHRARIEÆ.

345. Lythrum Græfferi, Ten. Moab, Gilead.

XXXI.—CUCURBITACEÆ.

346. Citrullus Colocynthis, L. El-Ghor.
347. Bryonia multiflora, Boiss. et Held. Gilead.

XXXII.—FICOIDEÆ.

348. Mesembryanthemum nodiflorum, L. El-Ghor, Callirrhoë.
349. Aizoön Canariense, L. Callirrhoë.

XXXIII.—UNBELLIFERÆ.

350. Eryngium glomeratum, Boiss. Haurân.
351. Creticum, L. Moab, Haurân.
352. Buplevrum nodiflorum, L. Gilead.
353. Astoma seselifolium, D. C. Es-Salt, Haurân.
354. Scaligeria Cretica, Un. Gilead.
355. Lagœcia cuminoides, L. Mountains of Moab.
356. Smyrnium connatum, Boiss. et Ky. Haurân.
357. olusatrum, L. Woods near Es-Salt.
358. Smyrniopsis (Opoponax ?) Syriaca, Boiss. Haurân.
359. cachroides, Boiss. Haurân.
360. Conium maculatum, L. Gilead.
361. Lecockia Cretica, Lam. Woods, Gilead.
362. Hippomarathrum Boissieri, Reut. Jebel Kuleib.
363. Colladonia crenata, Fenzl. Moab, Gilead.
364. anisoptera, Boiss. Haurân.
365. Apium graveolens, L. Tel-el-Hammâm.
366. Pimpinella corymbosa, Boiss. Table-land of Moab, Haurân.
367. eriocarpa. Ascent from El-Ghor to 'Ayûn Musa.
368. Synelcosciadium Carmeli, Boiss. Gilead.
369. Bifora testiculata, L. Haurân.
370. Carum elegans, Fenzl. Gilead; Haurân, near mountains.
371. Ammi majus, L. Common throughout.
372. Visnaga, Lam. Common throughout.

373. Falcaria Rivini, Host. Moab.
374. Anthriscus nemorosa, M. B. Jebel Kuleib.
375. sylvestris, L. Sûf to 'Ajlûn, in open glades in the woods.
376. lamprocarpa, Boiss. Wadi-es-Sîr.
377. Physocaulos nodosus, Tourn. Jebel Husha', Wadi-es-Sîr.
378. Prangos ferulacea, L., var. scabra, Boiss. Jebel Kuleib.
379. *melicocarpa*, Boiss., *var. Trachonitica*, Post. On the volcanic scoriæ, on the sides and at base of Tell Shihân, Lejâ.
380. Cachrys goniocarpa, Boiss. Gilead.
381. Ferula communis, L. El-Ghor, Moab.
382. *Ferulago Auranitica*, Post. Kureiyah, Haurân.
383. Exoacantha heterophylla, Lab. Moab.
384. Krubera peregrina, L. Haurân, Common on Philistine plains.
385. Ainsworthia trachycarpa, Boiss. Moab.
386. Tordylium Ægyptiacum, L. Moab, Gilead.
387. Malabaila Sekakul, Russ. Flanks of El-Ghor.
388. *Daucus Jordanicus*, Post. El-Ghor
389. Chætosciadium trichospermum, L. Mountains of Moab.
390. Daucus subsessilis, Boiss. Jebel Husha'. A plant not heretofore observed in the East.
391. Caucalis tenella, L. Mountains of Moab.
392. leptophylla, L. Haurân.
393. Torilis triradiata, Boiss. et Held. Burmah, Gilead.
394. neglecta, Roem. et Sch. Gilead.
395. nodosa, L. Gilead.
396. Turgenia latifolia, L. Gilead, Haurân.
397. Lisæa Syriaca, Boiss. Haurân.

XXXIV.—CAPRIFOLIACEÆ.

398. Lonicera Etrusca. Woods south of Es-Salt.
Lonicera mummularifolia. At northern base of cone of Jebel Kuleib.

XXXV.—RUBIACEÆ.

399. Rubia tinctorum, L. Moab, Gilead.
400. Callipeltis Cucullaria, L. Moab, Gilead.
401. Vaillantia hispida, L. Moab, Gilead.
Galium verum. Jebel Kuleib.
402. tricorne, Withb. Moab, Gilead, Haurân.
403. murale, L. Moab, Gilead.
404. Aparine, L. Moab, Gilead, Haurân.
405. spurium, L., var. Vaillantii, Gr. et Godr. Moab, Gilead.
406. nigricans, Boiss. Haurân.

407. Galium Judaicum, Boiss. Moab, Khan Hathrûrah to Jericho.
408. setaceum, Lam. Ascent from El-Ghor to Nebo. Fruiting pedicels of this variety 2 to 6 times as long as fruit.
409. coronatum, S. and Sm. Moab, Gilead, Haurân.
410. articulatum, L. Moab, Gilead, Haurân.
411. Mericarpæa vaillantioides, Boiss. Haurân.
412. Asperula arvensis, L. Moab, Gilead, Haurân.
413. Sherardia arvensis, L. Moab, Gilead, Haurân.

XXXVI.—VALERIANACEÆ.

414. Valerianella diodon, Boiss. Haurân.
415. Orientalis, Schlecht. Gilead.
416. truncata, Rchb. Gilead, Haurân.
417. coronata, Willd. Moab, Gilead.
418. vesicaria, Willd. Moab, Gilead, Haurân.
419. Kotschyi, Boiss. Haurân.
420. Boissieri, Krok. Haurân. Should be a mere variety of the last.

XXXVII.—DIPSACEÆ.

421. Cephalaria Syriaca, L. Moab, Gilead.
422. var. sessilis, D. C. Haurân.
423. Scabiosa Ucranica, L. Moab, Gilead.
424. prolifera, L. Moab, Gilead, Haurân.
425. Palestina, L. Moab, Gilead, Haurân.
426. Pterocephalus plumosus, L. Moab, Gilead, Haurân.
427. pulverulentus, Boiss. et Bl. Haurân.

XXXVIII.—COMPOSITÆ.

428. Erigeron Canadense, L. Common along roadsides.
429. Bellis perennis, L. Gilead.
430. Asteriscus aquaticus, L. Common.
431. graveolens, Forsk. Moab.
432. Pallenis spinosa, L. Moab.
433. Iphiona juniperifolia, Cass. Lower valleys of Moab.
434. Conyza Dioscoridis, Rauw. El-Ghor.
435. Phagnalon rupestrê, L. Mountains of Moab.
436. Helichrysum sanguineum, L. Jebel Husha'.
437. Filago spathulata, Presl. Haurân.
438. Germanica, L. Gilead.
439. Achillæa micrantha, M. B. Moab, Gilead.
440. Santolina, L. Moab.
441. falcata. Gilead, Haurân.

442. Anthemis montana, L. Haurân.
443. cornucopiæ, Boiss. Nebo.
444. hyalina, D. C. Haurân.
445. tinctoria, L. Haurân.
446. var. discoidea, Boiss. Gilead.
447. Cotula, L. Moab, Gilead, Haurân.
448. altissima, L. Moab.
449. Chrysanthemum Coronarium, L. Throughout.
450. segetum, L. Throughout.
451. Artemisia monosperma, Del. Moab.
452. Herba-alba, Asso. El-Ghor.
453. Senecio vernalis, W. K. Common throughout.
454. coronopifolius, Desf. El-Ghor.
455. Calendula Ægyptiaca, Desf. Common throughout.
456. Palæstina, Boiss. Flanks of El-Ghor.
457. Dipterocome pusilla, F. and M. Haurân.
458. Gundelia Tournefortii, L. Moab.
459. Echinops viscosus, D. C. Gilead.
460. Chardinia xeranthemoides, Desf. Deep valleys of Moab.
461. Atractylis cancellata, L. Shittim plain.
462. Notobasis Syriaca, L. Moab, El-Ghor.
463. Onopordon Illyricum, L. Gilead, Haurân.
464. ambiguum, Fresen. Haurân.
465. Silybum Marianum, L. Tel-el-Hammâm.
466. Amberboa crupinoides, Desf. Moab.
467. *Centaurea Trachonitica*, Post. Near Shuhba.
468. eryngioides, Lam. Wady Kelt.
469. cyanoides, Beggr. Gilead.
470. myriocephala, Sch. Gilead, Haurân.
471. Behen, L. Haurân.
472. calcitrapa, L. Haurân.
473. sp. Moab, between Ma'în and Callirrhoë.
474. pallescens, Del. Tell-el-Hammâm.
475. Carthamus sp. Moab.
476. nitidus, Boiss. Moab.
477. Carduus argentatus, L. Moab.
478. Scolymus Hispanica, L. Moab.
479. Rhaponticum pusillum, Labill. Moab.
480. Rhagadiolus stellatus, D. C. Gilead.
481. Hedypnoïs Cretica, L. Moab.
482. Hagoseris Galilea, Boiss. Haurân.
483. Crepis Hierosolymitana, Boiss. Gilead.
484. Thrincia tuberosa, L. Gilead.
485. Leontodon hispidulum, L. Moab.
486. Hypochæris, sp. Ammân.
487. Lactuca tuberosa, L. Gilead.
488. Sonchus asper, Vill. Moab.

489. Sonchus oleraceus, L. Ascent to Moab.
490. Zollikofferia mucronata, Forsk. New bridge of Jordan.
491. Scorzonera phæopappus, Boiss. Haurân.
492. papposa, D. C. Moab.
493. Jacquiniana, Koch. Haurân.
494. Tragopogon buphthalmoides, Boiss. Moab, Haurân.

XXXIX.—CAMPANULACEÆ.

495. Campanula dichotoma, L. Moab, Gilead.
496. Rapunculus, L. Gilead.
497. Specularia Speculum, L. Moab, Gilead, Haurân.
498. falcata, Ten. Gilead.

XL.—ERICACEÆ.

499. *Arbutus Andrachne L., var. serratula*, Post. Mountains of Moab and Gilead. This tree is known in Southern Palestine and east of the Jordan as *Qaikob*, which name in Lebanon is applied to the Maple, while the Arbutus is there known as *Qotlib*.

XLI.—PRIMULACEÆ.

500. Cyclamen latifolium, Sibth. and Sm. Rocks, Moab, Gilead.

XLII.—PLUMBAGINEÆ.

501. Statice Thouini, Viv. Jordan valley and flanking hills to the sea level.
502. pruinosa, L. Dead Sea and valleys above it. This species has large, 1 to 3 inches long, obovate leaves, tapering to a petiole, but they are not usually seen in herbaria. Boissier says that the leaves are *small*. There are no specimens with leaves among the many in his herbarium.
503. spicata, Willd. Jordan valleys, Damascus plain.

XLIII.—STYRACACEÆ.

504. Styrax officinale, L. Moab, Gilead.

XLIV.—OLEACEÆ.

505. Olæa Europæa, L. Moab.

XLV.—APOCYNACEÆ.

506. Vinca herbacea, W. K. Gilead.
507. Nerium Oleander, L. Moab, Gilead, Haurân.

XLVI.—ASCLEPIADACEÆ.

508. Periploca aphylla, Dec. By a canal near Tell-el-Hammâm, in the Shittim plain.
509. Calotropis procera, Willd. Shittim plain.
510. Pentatropis spiralis, Forsk. Callirrhoë.
511. Dæmia cordata, R. Br. Callirrhoë.

XLVII.—BORRAGINEÆ.

512. Trichodesma Africanum, L. Callirrhoë.
513. *Boissieri*, Post. Ruins of Kasr-el-'Abd, at 'Arak-el-Emîr.
514. Heliotropium Bovei, Boiss. Moab.
515. villosum, Willd. Moab.
516. Europæum, L. Moab.
517. Cynoglossum Nebrodense, Guss. Jebel Husha'.
518. pictum, Ait. Everywhere.
519. Trachelanthus Kurdica, Ky. Wâdy-es-Sîr, with linear calyx-lobes and pedicels twice as long as calyx. This species is probably the same as T. pereana, Paine.
520. Solenanthus amplifolius, Boiss. Jebel Kuleib, among the pumice on the northern declivity below the summit.
521. Asperugo procumbens, L. Moab, Gilead.
522. Anchusa Italica, Retz. Moab, Gilead, Haurân.
523. strigosa, Labill. Moab.
524. neglecta, Alphe D. C. Birket-Dân, Jebel-ed-Durûz.
525. Nonnea obtusifolia, Willd. Moab, Gilead.
526. melanocarpa, Sibth. et Sm. Haurân.
527. Alkanna strigosa, Boiss. 'Ayûn Mûsa.
528. *Orientalis*, *L.*, *var. integrifolia*, Post. El-Kûfr at foot of Jebel Kuleib.
529. Myosotis refracta, Boiss. Jebel Kuleib.
530. hispida, Schlecht. Jebel-ed-Durûz.
531. Lithospermum arvense, L. Moab, Gilead, Haurân.
532. incrassatum, Guss. El-Kûfr.
533. Onosma sericeum, Willd. Haurân. Not to be distinguished from O. flavum, Lehm.
534. giganteum, Lam. Jebel Husha', north flank.
535. Podonosma Syriacum, Labill. Fissures of rocks, common.
536. Cerinthe major, Lam. Moab, Gilead.
537. *Echium plantagineum*, *L.*, *var. puberulentum*, Post. Indument of velvety wool and spreading hairs.

XLVIII.—CONVOLULACEÆ.

538. Calystegia sepium, L. Gilead.
539. Convolvulus Dorycnium, L., var. oxysepalus, Boiss. El-Ghor, Moab.
540. hirsutus, L. Haurân.
541. althæoides, L. Ascent from El-Ghor to 'Ayûn Mûsa.
542. pilosellæfolius, Desr. At Tell-er-Ramé.
543. stachydifolius, Choisy. Moab, Haurân.
544. arvensis, L. Moab, Gilead, Haurân.
545. Scammonia, L. Gilead.
546. Cuscuta planiflora, Ten. Moab.

XLIX.—SALVADORACEÆ.

547. Salvadora Persica, Gare. In clumps about the hot springs at Tell-el-Hammâm. The leaves of this specimen are oblong-linear.

L.—SOLANACEÆ.

548. Solanum nigrum, L. Moab, Gilead, Haurân.
549. *Dulcamara*, *L.*, *var. lyratum*, Post. Lower leaves lyrate-pinnatipartite, with one pair of leaflets and one pair of lobes. Gilead.
550. coagulans, Forsk. El-Ghor.
551. Withania somnifera, L. Rocks above Callirrhoë; a variety with long peduncles.
552. Lycium Arabicum, Schw. El-Ghor, Moab.
553. Mandragora officinarum, L. Gilead, Haurân.
554. Hyoscyamus reticulatus, L. Moab, Gilead, Haurân.
555. aureus, L. Ascent from El-Ghor to 'Ayûn Mûsa.

LI.—SCROPHULARIACEÆ.

556. Verbascum ptychophyllum, Boiss. Moab, Gilead.
557. *Gileadense*, Post. Wâdi-es-Sîr.
558. pinnatum, L. Ascent from El-Ghor to 'Ayûn Mûsa.
559. *Qulebicum*, Post. Jebel Kuleib, south-western declivity of cone.
560. sp. near Es-Salt. A species only in leaf. Lower leaves oblong, a foot long, densely pannous.
561. Celsia heterophylla, Desf. Gerash, on the aqueduct bridge.
562. Linaria Ægyptiaca, L. Callirrhoë.
563. Damascena, Boiss et. Gaill. Haurân.
564. Chalepensis, L. Ascent from El-Ghor to 'Ayûn Mûsa.
565. Linaria Hælava, Forsk. Top of wall of Jerusalem, valleys about Dead Sea, El-Ghor.

566. Anarrhinum Orientale, Bth. Gilead, Jebel-ed-Durûz.
567. Scrophularia macrophylla, Boiss. In caves at 'Ayûn Mûsa.
568. Michoniana, Coss. et Kral. Below caves at 'Ayun Musa. var. tenuisecta, Boiss. Es-Salt.
569. xanthoglossa, Boiss. Moab, Gilead.
570. *Gileadensis*, Post. On the road from Sûf to 'Ajlûn Gilead.
571. variegata, M. B., var. Libanotica, Boiss. Near El-Kûfr, under Jebel Kuleib.
572. Veronica Anagallis, L. Common in wet places.
573. anagallioides, Guss. Less common than the last.
574. Orientalis, Mill., var. tenuifolia, Boiss. Mountains of Gilead.
575. Syriaca, Raem. et Sch. Common throughout.
576. Cymbalaria, Bod. Common throughout.
577. Eufragia latifolia, L. Jebel-ed-Durûz.
578. viscosa, L. Gilead.

LI.—VITICEÆ.

579. Vitex Agnus-Castus, L. Jebel-ed-Durûz.

LII.—OROBANCHACEÆ.

580. Phelipæa lavandulacea, Rchb. El-Ghor, Jebel-ed-Durûz.
581. ramosa, L. Moab, Haurân.
582. lutea, Desf. El-Ghor.
583. Orobanche speciosa, D. C. Common throughout.
584. cernua, Löfl. Sowarat-es-Saghiri.

LIII.—ACANTHACEÆ.

585. Acanthus hirsutus, Boiss. Ascent from El-Ghor to 'Ayun Musa.
586. Blepharis edulis, Forsk. On the road a few hundred yards above Callirrhoë.

LIII.—LABIATÆ.

587. *Thymus Syriacus*, Boiss, *var. Trachoniticus*, Post. On the hot rocks of lava near Brak, El-Leja.
588. Mentha sylvestris, L. Moab.
589. Origanum Maru, L. Moab.
590. Micromeria nervosa, Desf. Mountains of Moab and Gilead.
591. Juliana, L. Gilead.
592. Calamintha graveolens, M. B. Gilead, Jebel-ed-Durûz.
593. Melissa officinalis, L. Konawât.

594. Salvia pinnata, L. Jebel Husha'. Gilead.
595. acetabulosa, Vahl. Gilead, Haurân.
596. Pinardi, Boiss. Moab, Haurân.
597. spinosa, L. Haurân.
598. Syriaca, Bth. Gilead, Haurân.
599. ceratophylla, L. Haurân.
600. brachycalyx, Boiss. Moab, Gilead.
601. Hierosolymitana, Boiss. Moab, Gilead.
602. Verbenaca, L. Moab, Gilead, Haurân.
603. controversa, Ten. Moab, Gilead, Haurân.
604. Horminum, L. Moab, Gilead, Haurân.
605. Russelii, Bth. Shuhbah, at the edge of El-Leja.
606. Zizyphora capitata, L. Gilead, Haurân.
607. Nepeta marruboides, Boiss. et Held. Jebel Kulêb.
608. *Trachonitica*, Post. Among the ruins at Shuhbah.
609. Cilicica, Boiss. Moab.
610. curviflora, Boiss. Jebel Husha'.
611. cryptantha, Boiss. et Haussk. Maîn.
612. Scutellaria fruticosa, Desf. Gilead, Haurân,
613. Brunella vulgaris, L. Moab, Gilead, Haurân.
614. Stachys Arabica, Boiss. Ain Hesbân, 'Ammân.
615. pullulans, Vent. 'Ain Hesbân. 'Ammân.
616. *Libanotica*, *Bth.*, *var. eriocalyx*, Post. Suweidah to 'Atîl, Haurân
617. Cretica, Sibth. et Sm. Jebel Husha'.
618. Marrubium cuneatum, Russ. Jebel Husha', Haurân.
619. Lamium amplexicaule, L. Moab, Gilead.
620. moschatum, L. Moab, Gilead Haurân.
621. Mollucella lævis, L. Haurân.
622. Ballota undulata, Fresen. Moab, Gilead Haurân.
623. saxatilis, Sieb. Ascent from El-Ghor to 'Ayûn Mûsa.
624. nigra, L. Gilead.
625. Phlomis Nissolii, L. El-Ghor, Moab, Gilead.
626. viscosa, Poir. Moab, Gilead, Haurân.
627. *fruticosa*, *L.*, *var. leiostegia*, Post. On the road from Mâîn to Callirrhoë.
628. Herba-Venti, L. Moab, Gilead.
629. Eremostachys laciniata, L. Moab.
630. Prasium majus, L. Moab, Gilead.
631. Teucrium pruinosum, Boiss. Haurân.
632. Polium, L. Ascent from El-Ghor to 'Ayûn Mûsa.
633. *Teucrium Auraniticum*, Post. In clumps by the roadside from Bosrah to Kureiyah, Haurân.
634. Ajuga Orientalis, L. Moab, Gilead.
635. Chia, Poir, var. tridactylites, Boiss. Moab.

LIV.—PLANTAGINEÆ.

636. Plantago lanceolata, L., var. altissima, Boiss. Gilead.
637. albicans, L. 'Ayun Musa, Irbid, Haurân.
638. *amplexicaulis*, *Cav.*, *var. linearifolia*, Post. Khan Hathrûrah to Jericho.
639. Cretica, Lam. Moab.
640. ovata, Forsk. Khan Hathrûrah to Jericho.
641. *Plantago ovata*, Forsk., *var. lanata*, Post. Between Irbid and Bosrah in Haurân.

LV.—CHENOPODIACEÆ.

642. Chenopodium album, L. Common throughout.
643. murale, L. Common throughout.
644. Beta vulgaris, L., *a* typica, Boiss. Flanks of El-Ghor.
645. *b* maritima, Boiss. Suleim, Haurân.
646. Atriplex Palæstinum, Boiss. Khan Hathrûrah.
647. Alexandrinum, Boiss. Between El-Leja and Damascus.
648. leucocladum, Boiss. Callirrhoë.
649. Kochia latifolia. Fres. Callirrhoë.
650. Camphorosma Monspeliacum, L. Moab.
651. Salicornia fructicosa, L. Sowarat-el-Kebîrah.
652. Suæda fructicosa, L. Callirrhoë.
653. asphaltica, Boiss. Khan Hathrûrah to Dead Sea.
654. Atraphaxis spinosa, L. Ascent from El-Ghor to 'Ayûn Mûsa.

LVI.—POLYGONACEÆ.

655. Polygonum Bellardi, All. El-Kufr, Haurân.
656. polycnemoides, Jaub. et Sp. Kaldûn.
657. aviculare, L. Ascent from El-Ghor to 'Ayûn Mûsa.
658. Rumex conglomeratus, Murr. Wady-es-Sîr.
659. obtusifolius, L. Haurân.
660. tuberosus, L. Haurân.
661. roseus, L. Khan Hathrûrah to Jericho.
662. lacerus, Balb. Ascent from El-Ghor to 'Ayûn Mûsa.
663. Emex spinosus, L. Flanks of El-Ghor.

LVII.—ARISTOLOCHIACEÆ.

664. Aristolochia Maurorum, L. Jebel Kuleib, Es-Salt.

LVIII.—THYMELEÆ.

665. Lygia pubescens, Guss. El-Ghor.

LIX.—SANTALACEÆ.

666. Osyris alba, L. Moab, Gilead.

LX.—LORANTHACEÆ.

667. Viscum cruciatum, Sieb. Moab, Gilead.
668. Loranthus Acaciæ, Zucc. El-Ghor.

LXI.—CYNOCRAMBEÆ.

669. Cynocrambe prostrata, Gaertn. Jebel Husha'.

LXII.—EUPHORBIACEÆ.

670. Euphorbia falcata, L. Gilead.
671. var. Galilæa, Boiss. Moab.
672. aulacosperma, Boiss. 'Ajlûn.
673. arguta, Schrad. Haurân.
674. thamnoides, Boiss. 'Ayûn Mûsa, Jebel Husha'.
675. Helioscopia, L. Gilead, Haurân.
676. tinctoria, L. Plain of Damascus.
677. var. schizoceras, Boiss. Gilead.
678. Ricinus communis, L. El-Ghor.
679. Andrachne telephioides, L. El-Ghor, Gilead.
680. Mercurialis annua, L. Everywhere.

LXIII.—URTICACEÆ.

681. Celtis Australis, L. Gilead.
682. Ficus Carica, L. Moab, Gilead.
683. Urtica pilulifera, L. Common.
684. membranacea, Poir. Common.
685. Parietaria officinalis, L. Moab, Gilead.

LXIV.—JUGLANDACEÆ.

686. Juglans regia, L. Gilead.

LXV.—PLATANACEÆ.

687. Platanus Orientalis, L. Moab, Gilead.

LXVI.—CUPULIFERÆ.

688. Quercus coccifera, L. Moab, Gilead, Haurân
689. Cerris, L. Jebel Kuleib.
690. Ægilops, L. Moab, Gilead.

LXVII.—SALICACEÆ.

691. Salix fragilis, L. El-Kûfr.
692. sp. near alba, L. Tell-el-Hammâm.
693. Populus Euphratica, Oliv. El-Ghor.
694. nigra, L. Cultivated everywhere along watercourses.

LXVIII.—EPHEDRACEÆ.

695. Ephedra Alte, L. Jebel Sîâghah.
696. campylopoda, C. A. M. Ascent from El-Ghor to 'Ayûn Mûsa.

LXIX.—CONIFERÆ.

697. Pinus Halepensis, Mill. Moab, Gilead.

LXX.—ORCHIDACEÆ.

698. Cephalanthera ensifolia, Murr. Woods, Moab and Gilead.
699. Limodorum abortivum, L. Woods south of Es-Salt, Jebel Husha'.
700. Orchis sancta, L. Gilead.
701. punctulata, Stev., var. sepulchralis, Boiss. In a clearing on the road between 'Ammân and Es-Salt. The specimens found had pallid green-nerved sepals.
702. tridentata, Scop. Gilead.
703. saccata, Ten. Moab, Gilead.
704. Anatolica, Boiss. Woods south of Es-Salt.
705. Anacamptis pyramidalis, L. Between Burmah and Gerash, Gilead.
706. Ophrys apifera, Huds. Between Burmah and Gerash, Gilead.

LXXI.—IRIDACEÆ.

707. Iris Sisyrhinchium, L. Everywhere.
708. Sari, Baker. Plains of Moab.
709. Gladiolus Illyricus, var. Anatolicus, Boiss., Koch. Moab, Gilead, Haurân.
710. atroviolaceus, Boiss. Haurân.
711. Ixiolirion montanum, Labill. Moab.

LXII.—LILACEÆ.

712. Asparagus acutifolius, L. Common throughout.
713. stipularis, Forsk. El-Ghor.
714. var. brachyclados, Boiss. El-Ghor.
715. Lownei, Baker. New bridge of Jordan. A variety with leaves spurred at base; the specimen in the Herbarium of Kew is destitute of spurs.

716. Asphodelus microcarpus, Viv. El-Ghor, Moab, Gilead.
717. fistulosus, L. El-Ghor, Moab.
718. Asphodeline lutea, L. Haurân.
719. brevicaulis, Bert. Jebel Husha', Haurân.
720. *brevicaulis, Bert., var. foliosus*, Post. Stem leafy to base of panicle. Haurân.
721. Taurica, Pall. Jebel Neba.
722. Tulipa Oculus-Solis, L. Gilead.
723. montana, Lindl. Jebel Kuleib, Haurân plain.
724. Allium Hierochuntinum, Boiss. Flanks and valley of El-Ghor, Haurân.
725. stamineum, Boiss. El-Ghor.
726. Sindjarense, Boiss. et Haussk. Sowarat-el-Kebîrah.
727. trifoliatum, Cyr. Haurân.
728. Neapolitanum, Cyr. Moab, Gilead, Haurân.
729. Schuberti, Zucc. Haurân.
730. nigrum, L. New bridge of Jordan.
731. Erdelii, Zucc. Jebel Sîâghah, Gilead, Jebel-el-Durûz.
732. Scilla hyacinthoides, L. Wady-es-Syr.
733. Urginea maritima, L. Ascent from El-Ghor to 'Ayûn Mûsa.
734. Muscari comosum, Mill. Moab, Gilead, Haurân.
735. Pinardi, Boiss. Jebel Sîâghah.
736. longipes, Boiss. Jebel Kuleib.
737. racemosum, L. Haurân.
738. Bellevalia macrobotrys, Boiss. Es-Salt, Haurân.
739. densiflora, Boiss. Merj, Damascus.
740. Ornithogalum Narbonense, L. Moab, Gilead, Haurân.
741. var. densum, Boiss. Haurân.
742. umbellatum, L. Moab, Gilead, Haurân.
743. montanum, Cyr. Gilead.
744. Fritillaria Libanotica, Boiss. Haurân.

LXXIII.—SMILACEÆ.

745. Smilax aspera, L., var. Mauretanica, Boiss. Moab.

LXXIV.—COLCHIACEÆ.

746. Colchicum Ritchii, R. Br. Shuhbah, El-Leja.

LXXV.—AROIDEÆ.

747. Arum Dioscoridis, Sibth. et Sm. Moab.
748. hygrophilum, Boiss. Gilead.
749. Helicophyllum crassipes, Boiss. Gilead.

LXXVI.—ALISMACEÆ.

750. Alisma Plantago, L. Moab, Haurân.
751. natans, L. In a pool, between 'Ajlûn and Irbid, Gilead. A plant not heretofore observed in the East.

LXXVII.—BUTOMACEÆ.

752. Butomus umbellatus, L. El-Ghor, Haurân.

LXXVIII.—TYPHACEÆ.

753. Typha latifolia, L. Ford of Jabbok, Gilead.

LXXIX.—JUNCACEÆ.

754. Juncus maritimus, L. Ascent from El-Ghor to 'Ayûn Mûsa.

LXXX.—PALMEÆ.

755. Phœnix dactylifera. Indigenous in valleys about the Dead Sea and in the Ghor.

LXXXI.—CYPERACEÆ.

756. Cyperus longus, Sieb. Moab, Gilead.
757. Scirpus Holoschænus, L. Gilead.
758. maritimus, L. Gilead.
759. Carex divisa, Huds. Haurân.
760. stenophylla, Vahl. Moab, Gilead.
761. Mediterranea, C. B. Clarke. Haurân. A new species found also in Sicily.

LXXXII.—GRAMINEÆ.

762. Pennisetum ciliare, L. Shittim plain.
763. asperifolium, Desf. Ascent from El-Ghor to Nebo.
764. Imperata cylindrica, L. Gilead.
765. Saccharum Ægyptiacum, L. Ascent from El-Ghor to Moab.
766. Arundo Donax. Ascent to Moab.
767. Pollinia distachya, L. Gilead.
768. Andropogon foveolatus, Del. Callirrhoë.
769. annulatus, Forsk. New bridge of Jordan.
770. hirtus, L. Nebo, Moab, Gilead.
771. Phalaris minor, Retz. El-Ghor.
772. Canariensis, L. Moab.
773. nodosa, L. Haurân.

774. *Alopecurus involucratus*, Post. Kureiyah to el-Kûfr, Haurân.
775. anthoxanthoides, Boiss. Nebo.
776. agrestis, L. Jebel-ed-Durûz.
777. pratensis, L. Moab, Haurân.
778. Aristida cærulescens, Desf. Gilead, Haurân.
779. Forskahlei, Tausch. Callirrhoë.
780. Stipa Lagascæ, Raem. et Sch. Plain of Moab.
781. passiflora, Desf. Brak, El-Leja.
782. capillata, Desf. Haurân.
783. tortilis, Desf. A mischievous and annoying weed; common everywhere.
784. Piptatherum miliaceum, L. Ascent from El-Ghor to Nebo.
785. holciforme, R. and Sch. Ammân, Es-Salt.
786. Milium vernale, M. B. Moab, Gilead.
787. Polypogon Monspeliense, L. El-Ghor.
788. maritimum, Willd. New bridge of Jordan.
789. Lagurus ovatus, L. Moab.
790. Aira capillaris, Host. Base of Jebel-el-Durûz, between Kureiyah and El-Kufr.
791. Ventenata Blanchei, Boiss. Haurân, between Kureiyah and El-Kufr.
792. Avena sterilis, L. Moab, Gilead, Haurân.
793. barbata, Brot. Moab, Gilead, Haurân.
794. var. glabra. El-Ghor.
795. Arrhenatherum elatius, L., var. Palæstinum, Boiss. Moab, Gilead, Haurân.
796. Cynodon Dactylon, L. Common throughout.
797. Danthonia, ? sp. . Jebel Husha'.
798. Tetrapogon villosum, Desf. Callirrhoë.
799. Echinaria capitata, L. Nebo.
800. Lamarckia aurea, L. El-Ghor, Moab, Gilead.
801. Cynosurus callitrichus, W. Barb. Solomon's Pools, Es-Salt, Nebo.
802. elegans, Desf. Es-Salt, 'Ajlûn.
803. Kœleria phlæoides, Vill. Moab, Gilead.
804. Catabrosa aquatica, L. Haurân.
805. Melica Cupani, Guss. Haurân.
806. Dactylis glomerata, L. Everywhere.
807. Schismus Arabicus, Nees. Ghor.
808. Poa compressa, L. Es-Salt.
809. annua, L. Everywhere.
810. bulbosa, L. Everywhere.
811. Festuca elatior, L., var. pratensis, Hack. Ammân, Plains of Moab.
812. Vulpia ciliata, Pep. Haurân.
813. Catapodium loliaceum, Huds. Ascent from El-Ghor to Nebo.
814. Scleropoa Philistæa, Boiss. Plain of Sharon.
815. Bromus erectus, Huds. Jebel-ed-Durûz.
816. tectorum, L. Throughout.
817. sterilis, L. Throughout.

MONTHLY METEOROLOGICAL TABLE DEDUCED FROM OBSERVATIONS TAKEN AT **SARONA** BY H
SEA SHORE, ON SANDY SOIL, AND ABOUT 50 F

By

Months, 1881.	Pressure of Atmosphere in Month. Corrected to 32° Fahrenheit.				Temperature of the Air in Month.							Mean
	Highest.	Lowest.	Range.	Mean.	Highest.	Lowest.	Range.	Mean of all Highest.	Mean of all Lowest.	Mean daily Range.	Mean.	Dry Bulb.
	in.	in.	in.	in.	°	°	°	°	°	°	°	°
January	30·235	29·751	0·384	29·997	80·0	40·0	40·0	71·0	48·0	23·0	59·5	59·3
February	30·007	29·524	0·583	29·838	75·0	41·0	34·0	64·8	47·6	17·2	56·2	58·2
March	30·175	29·579	0·596	29·917	87·0	40·0	47·0	68·4	48·1	20·3	58·3	62·6
April	30·035	29·545	0·490	29·828	96·0	47·0	49·0	77·6	56·9	20·7	62·2	71·9
May..	29·957	29·637	0·320	29·821	99·0	48·0	51·0	80·1	56·8	23·3	68·5	74·5
June	29·957	29·697	0·260	29·816	96·0	53·0	43·0	83·2	58·9	24·3	66·0	78·7
July..	29·860	29·563	0·297	29·705	89·0	60·0	29·0	86·2	67·1	19·1	76·6	82·3
August	29·871	29·570	0·301	29·675	106·0	67·0	39·0	89·9	70·3	19·6	80·1	85·4
September	29·940	29·663	0·277	29 792	92·0	63·0	29·0	88·1	68·1	20·0	78·1	83·3
October	29·994	29·823	0·171	29·902	89·0	54·0	35·0	83·3	61·5	21·8	72·4	78·2
November	30·076	29·747	0·329	29·919	89·0	49·0	40·0	75·0	55·9	19·1	65·5	67·1
December	30·232	29·784	0·448	29·975	72·0	39·0	33·0	66·2	47·4	18·8	56·8	57·0
Means	30·028	29·657	0·371	29·857	89·2	50·1	39·1	77·8	57·2	20·6	66·7	71·5
Number of Column ..	1	2	3	4	5	6	7	8	9	10	11	12

RR J. DREHER IMMEDIATELY NORTH OF THE GREAT ORANGE GROVES OF **JAFFA, SYRIA**, 1½ MILE FROM THE
EET ABOVE SEA-LEVEL. LATITUDE 32° 4′ N., LONGITUDE 34° 47′ E.

JAMES GLAISHER, *F.R.S.*

Reading at 9 a.m.		Vapour, 9 a.m.			Degree of Humidity.	Weight of a Cubic Foot of Air.	Wind.									Mean Amount of Cloud.	Rain.	
							Relative Proportion of								Calm, or nearly Calm.		Number of Days on which it fell.	Amount Collected.
Wet Bulb.	Dew Point.	Elastic Force of Vapour.	Weight in a Cubic Foot of Air.	Additional Weight required for Saturation.			N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.				
°	°	grs.	grs.	grs.	°	grs.												ins.
53·4	48·2	·338	3·8	1·9	67	535	0	1	3	11	11	1	1	0	3	4·6	4	0·47
53·6	49·4	·355	4·0	1·5	73	533	1	3	0	5	9	5	3	0	2	6·7	12	4·12
57·2	52·6	·398	4·4	1·9	70	530	1	2	1	5	5	7	4	2	4	4·2	10	2·55
62·2	54·9	·433	4·7	3·8	55	518	2	0	0	4	7	4	6	3	4	6·0	4	0·23
65·3	58·6	·495	5·3	3·9	58	515	1	2	2	0	0	6	7	9	4	3·1	0	0·00
69·8	63·7	·589	6·3	4·1	60	511	1	1	0	0	0	9	7	9	3	1·6	0	0·00
73·8	68·1	·688	7·3	4·3	66	505	0	0	0	0	0	21	8	1	1	1·9	0	0·00
76·7	71·1	·761	8·1	4·8	62	501	0	0	0	1	4	24	1	0	1	2·3	0	0·00
75·3	70·0	·733	7·8	4·3	64	505	0	1	0	1	0	11	2	6	9	2·6	0	0·00
68·5	61·8	·552	6·0	4·4	57	513	3	3	0	4	2	3	1	8	7	3·2	0	0·00
60·8	55·7	·446	4·9	2·5	67	525	0	3	3	8	7	4	0	1	4	5·0	7	5·09
52·9	49·1	·349	3·9	1·3	75	537	0	5	2	11	10	0	1	0	2	4·5	11	5·03
64·1	58·6	·511	5·6	3·2	64	519	Sums. 9	Sums. 21	Sums. 11	Sums. 50	Sums. 55	Sums. 95	Sums. 41	Sums. 39	Sums. 44	3·8	Sums. 48	Sums. 17·49
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

818. Bromus Matritensis, L. Everywhere.
819. Haussknechtii, Boiss. Jebel Kuleib.
820. macrostachys, Desf. Moab, Haurân.
821. brachystachys, Horn. New bridge of Jordan.
822. rubens, L. Everywhere.
823. scoparius, L. Everywhere.
824. Brachypodium distachyum, L. Moab, Gilead. Haurân.
825. Agropyrum junceum, Beauv. Mountains of Moab.
826. squarrosum, Roth. Haurân.
827. Secale fragile, M. B. Jebel Husha'.
828. Ægilops Aucheri, Boiss. Ascent from El-Ghor to Nebo.
829. crassa, Boiss. Ascent from El-Ghor to Nebo.
830. var. macrathera, Boiss. El-Ghor.
831. triuncialis, L. Gilead.
832. var. brachyathera, Boiss. Gilead.
833. Lolium rigidum, Gaud. Es-Salt, Haurân, El-Ghor, Jebel Husha'.
834. sp. Ascent from El-Ghor to 'Ayûn Mûsa.
835. sp. Burmah to Gerash, Gilead.
836. Hordeum bulbosum, L. Common throughout.
837. murinum, L. Common everywhere.
838. Elymus Caput-Medusæ, L. Haurân.
839. Delileanus, Schult. Gilead, Haurân.

LXXXIII.—FILICES.

840. Cheilanthes fragrans, L. Burmah, Gilead.
841. Adiantum Capillus-Veneris, L. Wet places everywhere. Very fine fronds of it are found in the cave at 'Ayûn Mûsa.
842. Ceterach officinarum, L. Gilead.

LXXXIV.—CHARACEÆ.

843. Chara, sp. Burmah.

METEOROLOGICAL OBSERVATIONS.

1881.

The numbers in column 1 of this table show the highest reading of the barometer in each month; of these, the highest appear in the winter, and the lowest in the summer months. The maximum for the year was in January, as in the preceding year, and was 30·235 ins. In column 2, the lowest in each month are shown; the minimum, 29·524 ins., was in February, in the preceding year it was in April; the range of readings in the year was 0·711 inch, in the year 1880 it was 0·780 inch. The numbers

in the 3rd column show the range of readings in each month ; the smallest, 0·171 inch, is in October, and the largest, 0·596 inch, in March. The numbers in the 4th column show the mean monthly pressure of the atmosphere ; the greatest is in January, and the smallest in August.

The highest temperature of the air in each month is shown in column 5. The highest temperature in the year was 106° in August, but the temperature reached and exceeded 90° in every month from April to September, with the exception of July, when the maximum was 89°. The first day in the year the temperature reached 90° was on April 8th, and there were three other days in this month when the temperature was more than 90°. In May there were four days when the temperature reached and exceeded 90° ; in June there were three such days ; in August ten days, the highest being 106°, on the 27th ; in September six days. The last day that the temperature reached 90° was on the 25th of September, therefore the temperature reached and exceeded 90° on 27 days in the year. The maximum temperature, both in October and November, was as high as 89°.

The numbers in column 6 show the lowest temperature of the air in each month ; in December the lowest temperature in the year was experienced, viz., 39°, and this temperature occurred on two different nights. Therefore, on only two nights in the year was the temperature so low as 39°, while, in the preceding year, it was as low as 32°, both in January and February. The yearly range of temperature was 67°. The range of temperature in each month is shown in column 7, and these numbers vary from 29° in July and September to 51° in May.

The mean of all the highest by day, of the lowest by night, and of the average daily ranges of temperature, are shown in columns 8, 9, and 10, respectively. Of the high day temperature, the lowest was in February, 64°·8 ; and the highest in August, 89°·9. Of the low night temperatures, the coldest, 47°·4, took place in December, and the warmest, 70°·3, was in August. The mean daily range of temperature, as shown in column 10—the smallest was 17°·2 in February, and the largest was 24°·3 in June.

In column 11, the mean temperature of each month, as found from observations of the maximum and minimum thermometers only. The month of the lowest temperature was February, 56°·2, and that of the highest was August, 80°·1. The mean temperature for the year was 66°·7, that of the preceding year was 66°·4.

The numbers in columns 12 and 13 are the monthly means of a dry and wet bulb-thermometer, taken daily at 9 a.m., and in column 14 the monthly temperature of the dew-point at the same hour, or that of the temperature at which dew would have been deposited. The elastic force of vapour is shown in column 15, and in column 16 the water present in a cubic foot of air ; in January this was as small as $3\frac{3}{4}$ grains, whilst in August it was as large as 8 grains. The numbers in column 18 show the degree of humidity, saturation being considered 100 ; the smallest number in this column is in April, and the largest in December. The

weight of a cubic foot of air, under its pressure, temperature, and humidity, at 9 a.m., is shown in column 19.

The most prevalent winds in January were S.E. and S., and the least prevalent were N. and N.W. In February the most prevalent was S., and the least prevalent were E. and N.W. In March the most prevalent were S.W., S.E. and S., and the least prevalent were N. and E. In April the most prevalent were S. and W., and the least N.E. and E. In May the most prevalent were N.W., W., and S.W., and the least were S.E. and S. In June the most prevalent were S.W., N.W., and W., and the least prevalent were E., S.E., and S. In July and August the most prevalent was S.W., and the least were N., E., and its compounds. In September the most prevalent was S.W., and the least E. and W. In October the most prevalent was N.W., and the least were N. and W. In November and December the most prevalent winds were S.E. and S., and the least prevalent were N., S.W., and W.

The numbers in column 29 show the mean amount of cloud at 9 a.m. ; the month with the smallest amount is June, and the largest February. Of the cumulus, or fine weather cloud, there were 91 instances in the year ; of these there were 18 in July and 18 in August, and 14 in September, and one only in February. Of the nimbus, or rain cloud, there were 53 instances in the year, of which 12 were in February, 11 in December, and 9 in March, 5 only from May to October. Of the cirrus, there were 59 instances in the year, of which 11 were in January, 9 in November, and 8 in February. Of the cirro-cumulus there were 16 instances in the year. Of the stratus 14 instances. Of the cirro-stratus there were 6 instances in the year. And there were 126 instances of cloudless skies.

The largest fall of rain for the month was in November, 5·09 ins. ; the next in order was in December, 5·03 ins., of which 1·91 inch fell on the 21st. In December, 1880, the fall was 10·5 inches. No rain fell from April 20th to the 6th of November, making a period of 189 consecutive days without rain. The fall of rain in the year was 17·49 inches, being 11·19 inches less than in the preceding year. The number of days on which rain fell was 48, in the preceding year the number was 66.

JAMES GLAISHER.

ALTAIC CYLINDERS.

AMONG the Babylonian cylinders—amulets or seals, in the British Museum, and the Phœnician cylinders which are kept with them—there are two or three which appear to belong to the so-called "Hittite" art, because they present hieroglyphic emblems like those of Hamath. It is possible that others classed as Babylonian which present figures of the gods without hieroglyphs may also be of this class (*see* "Guide to Kouyunjik Gallery," page 136).

Mr. T. G. Pinches (one of our best Akkadian scholars) has kindly sent

me casts of three of these cylinders, which are very similar to those published by Menant and Perrot, from Aidin in Lydia, and other places in Asia Minor. With respect to such cylinders Mr. Pinches says, in the Guide above quoted (p. 126), that they appear to have been used as charms suspended to the wrist, or hung round the neck or waist. The subjects are generally connected with mythology. Another of the same class is in possession of Mr. Greville Chester.[1]

No. 1. Menant, *les Pierres Gravées* II, Fig. 111.—Two deities in the usual high cap and skin robe face each other. Between is a bull's head and a scorpion, to the left four small figures under a twisted pattern (often found on these cylinders) with two birds above with long tails. To the left again a figure in a horned cap with sceptre somewhat like those of the god at Boghaz Keui.

The bull and scorpion are the emblems of the second and eighth month (which before 2152 B.C. were the first and seventh month, on account of precession), and they therefore probably indicate spring and autumn. The twist pattern may conventionally represent waves or clouds (it resembles the Chinese sign for cloud); the swallow is the emblem of fate, both in Babylonia and in Egypt. The deity with horned headdress is possibly Ea.

No. 2. Menant, Fig. 112.—The deity with horned cap, followed by a goddess in long skin robe, and by a god with high cap bearing the winged sun on his sceptre, approaches a quadrangular enclosure of twist pattern in which are a man and woman. Her headdress is that worn by the Phœnician and Egyptian goddesses (the globe and feathers), and in her right she holds an *ankh*, or emblem of life; the man wears a tiara or turban, and raises his hand in the attitude of blessing. This may represent a legend like the Median story of the *Vara*, or "garden," in which

[1] Mr. Greville Chester's collection, which he will, no doubt, describe, is of high interest, and contains several undoubted Altaic seals. His great seal from Tarsus may be Babylonian, but is equally likely to be Altaic. It has five designs, which have been published in "Nature." On the base a standing figure presents a trident to one seated on a throne, surrounded by a twisted pattern. On one side the eagle-headed deity (Nisroch) stands before an altar, at which is seated opposite a personage holding a cup and lightning; above him is the winged sun; over the altar the trident is flanked by two luck marks, common in Phœnicia. On the second side this luck mark (which I described in 1883 and 1886) stands between two figures, one seated and holding a stag (perhaps Dara). On the third a figure seated, with tiara and cup in hand (the cup is often held by deities), grasps a bird and a rabbit (emblems of the moon); in the corner is the luck mark. On the fourth side the seated figure holds a *trisul*, or trident, and a bird perches above it. This is one of the finest seals I have seen.

Mr. Greville Chester has also a Babylonian cylinder with a representation of human sacrifice (of which type the British Museum seems only to possess a solitary example), and several Phœnician seals, one with a personal name compounded with *Yah* (the shorter form of the Hebrew Jehovah), as in names read by Mr. Pinches in cuneiform.

the first man was enclosed to protect him from the great winter (Vendidad II, 61), where he is visited by the gods Ea, Istar, and Shamash (Tammuz), as the Chaldean Noah was visited after the flood.

No. 3. Menant II, Fig. 113.—A warrior with sword and spear, with the goat's head (*Tar*) behind him. A smaller personage standing on two mountains with a small deer in front. These face to the right towards two long robed figures with an antelope between, over which is the emblem (found in Phœnicia and Egypt also) of the sun resting in the cup of the crescent moon. The meaning of this combination is perhaps illustrated by the old Chinese compound emblem (Chalmers, p. 107), sun and moon, for *ming*, "bright."

No. 4. Perrot, *Hist. de L'art*, IV, p. 771.—An elaborate design mentioned in "Altaic Hieroglyphs" (2nd edition, page 65). On the upper edge is the twist pattern, and on the lower a sort of curb pattern just like the Chinese emblem for clouds. To the right a deity, marked by a star on his head, sits on a mountain with a deer at his (or her) feet, flanked by hawk-headed cherubs (this may be *Dara* (Ea) or *Istar*). To the left a larger deity, also like the preceding with skin robe, holds a triple lituus, and has the star beneath his throne. To the left again two rampant demons tear one another, and over them are two Altaic hieroglyphs, *Ne-Gug* or *Zi-Gug*, "fighting" or "spirits fighting."[1] To the left again the centre of the design shows a Janus, or two-headed god,[2] in skin robe, extending a whip towards these demons, and a cross towards three persons in skin robes (two long, one short-skirted), who approach, facing to the right with the hand in attitude of supplication. Beyond these to the left a long robed figure which, like the three suppliants, appears to have a pig-tail,[3] faces to the left and holds what may be a snake or a corn-sheaf.

[1] A very curious objection has been taken to the idea that the Hittite texts are religious because the later Assyrian texts are historical. Those who raise this objection seem to forget how much more numerous in antiquity are religious texts than are historical, especially at the earliest period. The British Museum is full of such religious texts from Babylonia and Assyria, as well as from Egypt, and votive texts are common also in Etruria, in Greece, and in Phœnicia. The great lion, with the name and titles of Asshur Nasir Pal, in the British Museum, bears a text in 41 lines in honour of the goddess Istar; and Mr. Pinches remarks: "To such an extent was the worship of the gods carried in Babylonia that *hardly any historical records* are found upon the cylinders of the kings, the inscriptions being entirely devoted to descriptions of the restoration and building of the temples and praises of the gods." This also applies to the texts in Akkadian (dating about 2500 B.C.) found at Tell Loh. Representations, not only of gods, but of demons also, occur on the great sculptures from Nineveh in the Museum.

[2] This two-headed deity is also to be found on an Akkadian cylinder figured by Perrot.

[3] In the great sculptures representing the conquest of Elam in the British Museum several of the Elamites have what looks like a plait or pigtail behind their heads. The Altaic races overspread Elam as well as Media and Chaldea.

Above is the sun-moon emblem for "brightness," already mentioned. Last of all, to the left, a small figure dancing on a fish, supports something which seems to represent the clouds—a Hittite Atlas.

No. 5 (same work, p. 772 Fig. 384).—A four-sided seal. On three sides are figures standing erect on beasts (just as so many deities are represented to stand in India, Phœnicia, &c., &c.). The first, on a horse or ass (*Set*), with the amulet sign, which in Cypriote has the sound *Ra*, and with a tree in front. The second on a deer (*Dara*), with the same sign and two stars. The third with star and amulet on a lion (*Ma*). On the fourth side two bull-headed satyrs support the tree of life with the winged sun above. This seal is from Asia Minor.

No. 6 (same work, p. 773, Fig. 386) represents five deities and five animals under them, with various hieroglyphs clearly Altaic. The first to the right seems to be a goddess, facing the right, and holding the lituus. Her emblem is a dove. The second, also facing to the right, seems to be a goddess. She holds a flower, and stands above a lion; before her is a hieroglyph common at Jerablus, which resembles the cuneiform *Da*.[1] The third deity is male, and faces to the left. He has the wings and tail of a bird, a tiara, a cross in the left hand (on the impression), and flail in the right. His emblem before him seems to be an altar. The animal below is a hare (the moon.)[2] The fourth deity also, with bare legs, and presumably male, is possibly a Janus with two faces. He wears the horned cap of Ea or Dara, and holds a tree. In front of him is a snake, and the lucky hand, so common at Carthage and all over Asia. His animal is the deer (*Tar* or *Dara*). The fifth deity faces to the right, and holds a sceptre. He is short-skirted, ram-headed, and with wings. In front of him is a flying bird (*Zi*), and behind him what may be a fish (*Kha*). Beneath him is the long-tailed bird (*see* back, No. 1) holding a twig in its beak. In his right hand (on the impression) he seems to hold the *Ankh*, or emblem of life. These five gods perhaps answer to the five deities whose emblems accompany the portraits of Assyrian kings, answering roughly to Venus, Juno, Lunus, Neptune, and Jupiter, or perhaps to the five propitious planets excluding the malifics (Mercury and Saturn). Whatever their precise character, we see that there were in Lydia (for this cylinder comes from Aidin), five gods whose emblems were the dove, the lion, the hare, the deer, and the eagle, to which we are able to add (*see* back, No. 5) a god who stood on a horse or ass.[3] These remarks clear the way for the

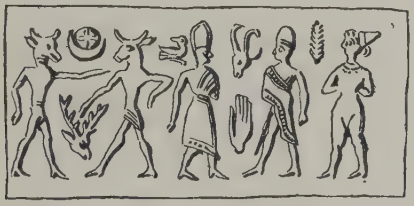
[1] Behind her head seems to occur the Cypriotic emblem, *Mu*. She may, therefore, be the "Mother" goddess, always distinguished from the Venus of Asia, whose emblem was the dove.

[2] The hare represents the moon among Mongols. In China the sun and moon are called "the Golden Crow and the Jade Rabbit."

[3] The ass is a frequent divine emblem in Egypt for the sun, and in Cappadocia the ass-head occurs with the sign of deity (compare the Myth of Midas and the Median holy ass in the sea). Mr. Greville Chester has a cylinder with a lion having beside it a well-marked ass-head. At Malthai we find deities sup-

description of the three cylinders in the British Museum, casts of which have kindly been sent to me by Mr. Pinches.

No. 7 (British Museum Catalogue, p. 136, No. 52).—On the left two bull-headed genii, with the sun-moon emblem ("brightness") above.[1] It is remarkable that the sun is marked in this case with a cross or wheel, as on the Jerabis stones. Beneath is the head of a deer with branching horns. These genii are the same as on No. 5.[2] To the right a deity in a mitre with the bird (*Zi*) as his emblem. Then another similar figure facing him in the same head-dress, between them an antelope's head, and the hand raised and open. This last emblem, which is so common at



Carthage, and which, in all countries, is a sign of good luck, occurs with the bird (*Zi*) on a cylinder published by Dr. Wright from Lajard ("Culte de Mithra," pl. xxiii, fig. 1[3]). The last figure to the right is the usual naked goddess, with hands raised to her breasts, as at Karkemish, Troy, &c. Her emblem is a palm branch or plant.[4]

No. 8 (British Museum Catalogue, No. 54).—To the right, a winged god, faced by a figure which seems, perhaps, about to slay a couching bull, which has a hump like the zebu, a third figure with a sword behind, and between these a fleur-de-lis-like object, apparently a form of the amulet *Ra*. The workmanship, with drilled holes for the heads, &c., resembles that of cylinders from Asia Minor.

No. 9 belongs to a large class in the Babylonian collection, perhaps

posed to be Assyrian, standing erect on animals, among which the lion, the horse, the deer, the winged bull, and the dog are distinct. The two gods at Bavian stand erect on lions, and this attitude occurs on coins as well as at Pterid in Cappadocia.

[1] This double emblem, sun and moon, seems later to have been replaced by moon and star (as in the modern Turkish flag), which combination is found with a gazelle on coins of Mithradates, King of Pontus (120–63 B.C.), and with a sheep on coins of Antioch.

[2] On a seal from Youzghâd found by F. G. R. Edwards, Esq., these bull-headed genii flank the winged sun. Other figures of the gods occur on this seal with a tree and a deer's head.

[3] This cylinder represents the sacred tree with goats beneath and the winged sun above, flanked by two figures, with the legend apparently *Zi-An-Sa*, "spirit of heaven favour" (Wright, "Empire of Hittites," Pl. XX, Fig. 5).

[4] This plant may show that the goddess is the Babylonian *Zirbanitu*, or "bestower of seed."

representing a king, or else the sun-god with his emblem—here a winged wheel—above, and with the eagle, the bird with the twig in its mouth,

and a dog, all behind his throne. On the altar in front a deer's head is being sacrificed[1] by two suppliants. A monkey sits by the altar.[2] The lion and the moon above we have already seen to be emblems of two goddesses. In the hand of the further suppliant is the head of an ass, either a sacrifice or an emblem of the ass-deity, like the two other emblems in the same line. Clemens Alexandrinus (Cohortatio II) says the Scythians sacrificed the ass to Phœbus. Strabo (xv, II, 14) says it was sacrificed to Mars.

These nine cylinders, and the three others mentioned in the notes, appear all to be of Altaic origin, but it is remarkable how similar is the character of the Babylonian examples when compared with those from Lydia and Tarsus.

The symbolism of many described in the British Museum Catalogue is much the same. In one class we have a sort of Perseus and Andromeda group, the male figure treading on a dragon, the female naked. In another (No. 5) Martu, Son of Heaven, wears a horned cap, and is accompanied by an ibex. The Chaldean Hercules, and his friend, the bull-headed satyr, Eabani, are represented slaying the winged bull, or rending the lion. An ibex also accompanies Eabani. On a Phœnician cylinder (No. 21) El subdues the gryphon and a winged man-headed bull. The deity with the axe[3] or hammer, found at Boghaz Keui, and also in Etruria, where he was called Puphluns, occurs on a Cyprian cylinder

[1] Among the Khitai, &c., the deer was sacrificed in honour of the sky. The club held by this deity recalls the clubs of the figures at Merash, Boghaz Keui, &c., on Altaic monuments.

[2] The monkey (of which I have only observed one other instance) is sitting under the moon. Perhaps we should compare the Egyptian ape with the moon on its head. The monkey figures in Indian mythology, but it is curious to find it in Western Asia. There are well-known representations, however, of apes and monkeys brought as tribute to Assyria.

[3] This weapon recalls the *Ai Balta*, "axe" (or hammer) "of honor," used by the Tartars in Bactria. Charun, the "black god" of Etruria, often carries it. It is also carried by a figure on coins of Idrieus, King of Caria, in 353-344 B.C., of his predecessor, Mausolus (377–353 B.C.), of his successor, Pixodarus (340–335 B.C.), and on a coin of the Carian city Mylassa the hammer also appears. We have a well-known figure of a horned god (apparently Rimmon) holding the lightning in one hand and an axe in the other.

(No. 46) with the sacred tree, gryphons, and gazelles and fish. The dog, ibex, goat, and gryphons, with a ravenous animal attacking a deer, occur on another (No. 47).[1] The ibex, bird, monkey, and lion, occur on another of doubtful class (No. 48). The sun-god and moon-goddess, on another, are accompanied by fish-goats, Capricornus (No. 55), while a human sacrifice is offered them, probably for rain in the 10th (older 9th) or autumn month of Capricornus.[2]

From these notes, to which many others may be added illustrative of these mythological cylinders, we gather the following facts :—

1. The general character and subject of the cylinder charms is the same in Babylonia, in Phœnicia, and in Asia Minor and Cyprus, though the characters used in writing distinguish the different classes in some instances. The curly-toed boots are not distinctive geographically. The presence of the same Turanian race in all these districts explains the connection in art and symbolism very simply.[3]

2. In Asia Minor at least eight deities may be distinguished, viz, A. *Istar*, the naked Venus connected with the moon and the dove. B. *Nana*, or *Ma*, the mother-goddess (earth) standing on the lion. C. The lion-headed god, holding a fawn or some other animal, accompanied by the head of a rabbit or of a hare (Babylonian *Sin*)—in other cases, a god stands on a hare. D. The ram-headed god with a bird (*Zi*). E. The bull-headed or horned god, accompanied by a serpent (*Ea*, *Esmun*, or *Martu*), whose emblem seems to be the deer (*Dara*). F. The sun-god, with wings and tail of an eagle (*Tamzi*, or *Ud*). G. The eagle-headed deity (*Nisroch*). H. The deity, ass-headed, or riding on an ass[4] (*Set*, or Bacchus).

[1] A Cyprian seal, with Cypriotic text, shows a gryphon attacking a deer. Compare the common group of the lion slaying a bull. This latter appears to be mentioned by Hellanicos (whom Josephus notices, Ant. i, 4–9) as representing water and earth, though this may be a late explanation.

[2] In confirmation of this suggestion of human sacrifice in time of drought may be quoted the Phœnician legend of El sacrificing his son in time of danger, and the well-known Babylonian text, " when the weather is fine . . . on the high place the son is sacrificed."

[3] Jade, though rare, is found in use in Mesopotamia. This jade must have come from Eastern Turkestan. It is found also in Switzerland. Jade has always been much prized by the Turanians, and is so still by the Chinese. It may be to the Turanians of Italy, not to Aryans, that its introduction into Europe is to be ascribed.

[4] The ass-headed god is shown by Rawlinson in his " Ancient Monarchies," and was known to the Gnostics. In Egypt, Set, Typhon, and Osiris are symbolised by the ass. In classic mythology the ass carries Bacchus and Silenus, and Priapus is also connected with the ass. In India the ass belongs to Yama, beneath the earth. In the Zendavesta the " three-legged ass " with one horn stands in the sea (Bundahish, ch. XIX). The ass was often sacrificed to Typhon and other deities, and there is no end to the mythology of this animal.

In addition to these, the sacred tree, the scarab, the winged horse, the gryphon, the man-bull, the sphynx, the cross, the *ankh*, and the lion-headed demons with eagle's feet and long ears, all appear to be common to the Babylonians, Phœnicians, Cyprians, Hittites, and other dwellers in Chaldea, Syria, and Asia Minor, and, in most cases, these symbols occur also in Etruria.

C. R. C.

CHINESE AND HITTITE.

The supposition that Chinese civilisation is connected with the old Turanian civilisation of Western Asia is by no means a recent theory. Lenormant in his "Manual" in 1868 (French edit. vol. i, p. 401), suggested that Chinese writing was derived from Akkadian hieroglyphics, and others have endeavoured to trace the connection.

The Rev. J. Edkins has written, since 1871 onwards, on the comparison of China and Babylonia, in writing, in astronomy, in the erection of observatories, in government, and in certain superstitions. In 1868, the Rev. J. Chalmers wrote on the same subject, and Professor R. K. Douglas has compared Chinese and Western myths. Mr. Hyde Clarke and Professor T. de Lacouperie have added to these comparisons, and the similarities of legend, language, religion and custom, dress and graphic ideas, must indeed strike any student of the Chinese who is acquainted with the west of Asia.

Nor is there any difficulty in accounting for such points of contact considering what is known of the early history of the Chinese.[1]

The Bak tribes (commonly called the "hundred families") came from the north-west, and entered the "flowery land," it is supposed, as early as 2300 B.C. Their language, in both grammar and words, presents numerous affinities to the Akkadian; and even in the modern Cantonese, which, according to Chalmers, preserves archaic terminations, I find about 100 words almost identical with Akkadian monosyllabic words, which agrees with Professor Max Muller's views as to Chinese.

The traditional number of hieroglyphics possessed by these immigrants from Central Asia was 540, including the secondary signs, or combinations of two, or even three, symbols (Lacouperie, "Chinese Civilisation," a lecture published 1880, p. 18). It has been said that this system was directly borrowed from Babylonia, but there are several objections to such a theory. The Chinese numerals are not like those of the cuneiform system (above three), the writing is in vertical lines, not from left to right as among Semitic writers of cuneiform; the compound emblems bear no relation to the compounds of the cuneiform.

The comparisons of Chinese and cuneiform, which I find possible in fifty or sixty cases, connect the Chinese with the very oldest Akkadian symbols which stand erect, and are written vertically for the word, and from right to left for the text. The sound, as well as the sense, is often

[1] *See* Professor T. de Lacouperie's new volume, "Languages of China before the Chinese," 1887.

the same, but since Chinese is a language of roots, not an agglutinative tongue, the comparison remains chiefly ideographic, and only serves to indicate a common (and very remotely common) origin rather than a direct literary borrowing. Some of the resemblances, such as the emblems for king, for fire, for white, for measure, for field, for twins, for storm, for bush, for wind, and for bondage, are, however, very remarkable, and can hardly be supposed due to independent origin. In all, I have noted sixty cases, comparing the Shwoh-wan with the oldest Turanian emblems of Tell Loh.

The great difficulty in such study lies in the corruption of both Chinese and cuneiform emblems through long use and graphic decay. Thus the Shwoh-wan (*see* Chalmer's translation) only dates back to about the Christian era ; and even the earlier Ku-wen writing is said not to be traceable before 900 B.C.—a time when the cuneiform was already a decadent system.

The Chinese having ceased to remember the original derivation of the majority of their emblems, introduced fanciful explanations, like those once supposed to explain the origin of square Hebrew ; and it seems that they even modified their forms according to their theories. A large proportion of emblems have thus become unrecognisable. Many, like the ape, the horse, the tortoise, the elephant, did not belong to the systems of Western Asia. Some which have retained their form yet, in recognisable outline, are, however, of great interest as showing the graphic ideas of Turanian picture writing ; and thus serving to throw light on the ideographic value of older emblems.

Comparing the commoner Altaic—or so-called Hittite—with the Chinese emblems of which the antiquity and meaning is undoubted, I find, in all, some fifty possible comparisons, some of which serve to throw light on the values of the Hittite. Thus the Hittite *Zi* or *Zo* is very like the Chinese common phonetic for air or vapour, agreeing with the value which I have proposed from the Akkadian for the Hittite. The jar which in Hittite appears to have the value *Pa* or *Be*, comparing the Cypriote *Pe* and the Akkadian *Bi*, for a liquid receptacle, is like the Chinese *fǎu*, a jar, used both as a radical (or ideogram) and as a phonetic. It seems to me, indeed, that the two classes of Chinese emblems called keys and phonetics (that is, emblems used in one case for picture value, in the other for sound value) answer in each of the fifty cases to the corresponding two classes of the Hittite, viz., the larger emblems used as pictures, and the smaller attached emblems used for sound only, as phonetics. Several of the comparisons may be erroneous, but they are numerous enough to make it appear probable that the Chinese and Hittite systems sprang from a common original system, which is, of course, more closely represented by the archaic Hittite than by the Chinese, even of 2,000 years ago.[1]

[1] *See* "Structure of Chinese Characters," by John Chalmers, M.A., LL.D., 1882, a copy of which translation of the Shwoh-Wan has kindly been lent to me by Lieutenant Mills, R.E.

Yet later in entering China from the north and north-west, were the Khitai from Mongolia, whose name originates the mediæval term Cathay. The Chinese travellers of the 13th century speak of the Khitai as formerly inhabiting the country east of the Aral Sea. Mr. Howarth's interesting account of the Khitai (J. R. A. S. xiii, 2) shows that this Tartar-Mongol people were in many respects very like the Kheta of the Egyptian monuments. Some words of their language preserve almost unchanged the old Akkadian sounds. They were great charioteers and bowmen, and they adored earth, sky, sun, and moon, and the sacred mountain, as the Hunns and the Etruscans did also, and as the Hittites are shown to have done from their treaty with Rameses. Like other Mongolian and Tartar peoples, they had a rich mythology. They were able to work metals as the Akkadians did from the earliest times, and as even the Turkomans still do ; and they had cities and palaces.

The royal names and titles of the Khitai also recall those of the inhabitants of Asia Minor and Syria mentioned on the monuments. The King was called *Kha-Khan* (as among Persians and Khozars)—perhaps the real rendering of the Medic double emblem for King. *Khopi*, *Kuku* (compare the Medic Khupa and the common Turanian word Kuk, for "superior") ; *Tulai* (compare Tulia, chief of the Kue) ; *Taishi* (from a Tartar root, meaning "to fight," whence Tis Tassi and Tassak, "hero," in Akkadian), are interesting names of Khitan chiefs. The meaning of the name Khitai is unfortunately obscure.

A great deal of light may be obtained from a study of the Turkic and Mongol history in illustrating the scattered fragments of information which we possess concerning the early Turanians of Chaldea and of Syria. In the folk lore of the Kirghiz, the Kalmuks,[1] and the Mongols, many of the old myths of the cuneiform tablets and Greek mythology remain but little changed.

The remaining words of the Carian language are easily explained by comparison with Turko-Tartar or Ugrian living words.

The curious non-Aryan inscriptions of Lemnos, which serve to connect the Etruscans with the shores of Greece and of Asia Minor, present us with a language evidently of the same class. Even among the Scythian Amazons of Herodotus we recognise the roots of the Akkadian language in words of which he gives the translation, and the similarities of Egyptian fairy stories written in the 14th century B.C., when they are compared with the legends of Central Asia, are so striking as to leave very little doubt as to their Turanian derivation.

The same study also enables us to understand Phœnician antiquity

[1] Take, for instance, the legend of King Midas, who had asses' ears. It occurs in a collection of Mongol tales, and the Kirghiz relate it in connection with Lake Issyk Kul. According to Herodotus, Midas was the first Phrygian King, and the Phrygians were apparently Turanians. Mita, King of the Moschi, is mentioned in a cuneiform text. On the Hittite monument a cap with ears like that invented for Midas is represented.

much more completely, as I have attempted to show elsewhere,[1] and without doubt some of those names of Greek deities and heroes which are not explicable as either Aryan or Semitic, may be easily understood if regarded as of Pelasgic or Turanian origin. Among these I would reckon Herakles, or Hercle (Etruscan), a word not explained by any Aryan etymology, but probably the Akkadian Er-gal (mentioned on a tablet), or "great man." The name Amazon may also be supposed to mean Ama-zun, or "female warrior;" while Eshmun and Silek, the Phœnician deities, may be Es-mun, "the good deity," and Sil-ik, "the bright one."[2]

The names of chiefs of various Asia Minor tribes from 1130 to 650 B.C., which have been found on the monuments and collected by Professor Sayce, present us with many clearly Turkic words, and with names or terminations also found in the Greco-Carian inscriptions. Thus Uricci, chief of the Kue, has a name comparable with the Tartar *örögi*, or "high." Burunate, the Yazbukian, may be compared with the Usbek word *Baranta*, for a "foray" or "raid." Menuas, King of Van, recalls the mythical giant *Manias*, the ancestor of the Kirghiz. Kalabōtēs, the Carian, has a name meaning "great hero" in Tartar dialects, where the word *Batis* survives, and is, perhaps, the Akkadian *Patesi*.

These are but a few instances out of very many in which the Akkadian and the living Turko-Tartar languages give a simple explanation of local and personal names. The Carian word Kōs (Kōn), for sheep, recalls the Turkish قوزی "lamb," and قویون "sheep," which among the Kirghiz becomes *Koi;* and the Carian τὰπα for a rock is clearly the Turkish تپه and the Turkoman *Tapa*, a well-known word for a hill. I believe that every known Carian word can be so explained, and the Carians are connected with the Hittites (by their syllabary) and with the Etruscans, according to classic tradition. The explanation of local names in Asia Minor occurring in Greek literature is equally satisfactory when comparison is made with the common geographical names of Central Asia. Thus, the termination *Der*, or *Dar*, in river names, is evidently illustrated by the Turkish دره "valley," and the Central Asian *Daria*, for "river." The importance of a study of Altaic languages for the elucidation of the antiquities of West Asia, Greece, and Italy, as well as of Egypt, can hardly be overstated. C. R. C.

[1] "Archæological Review," April, 1888.

[2] The name, Centaur (or Gandharva, according to Kuhn's comparison), has no good Aryan explanation. As a Turanian (Ugric) word it would mean "man-beast" (Gan-töra). The word Gorgon in like manner comes from a root meaning "terror."

ERRATUM.

In *Quarterly Statement*, July, 1888, p. 163, I see the words "The beech is found all over the north of Asia." The word *Minor* is omitted by error. The beech grows on Mount Parnassus and in the Caucasus. C. R. C.

"THE SPEECH OF LYCAONIA."

(Acts xiv, 11).

It is generally supposed that the language of Lycaonia may have been one of the old dialects of Asia Minor, akin to those of the Non-Aryans. For this reason it is interesting to consider the few words of Carian, Lydian, Phrygian, Cilician, and other Asia Minor dialects preserved for us in classic authors. Lycaonia lay close to Cilicia, west of Cappadocia, east of Phrygia, Caria, and Lydia.

The following are Carian words (*see* "Trans. Bib. Arch. Soc.," ix, 1).

1. *Ala*, a horse. Compare Hungarian *lo*, "horse," Chinese *lu*, "ass," Turko-Tartar *at*, "horse." The *t* and *l* are often interchanged in Altaic speech.

2. *Banda*, "victory." Compare *Banda* in the Malamir texts, where it seems to mean "strong."

3. *Glous*, "robber." The root *Kulu* in Mongolian (Buriat) means "to steal;" the common personal ending in *s* is here added.

4. *Kakkabe*, "a horse's head." The second part may be compared with the Esthonian *hobu* and Ostiak *kopta*, "horse," the first is perhaps *Ka*, "face" (as in Akkadian), or *Kak*, "top." Compare *sak*, "head," "top" in Akkadian and in Ugric speech.

5. *Kōs*, "sheep." Turkish *Kozi*, "lamb," Mongol *Khosa*, "ram," Kirghiz *Koi*, "sheep."

6. *Taba*, "rock." Zirianian *tüp*, "rock," Turkic *tapa*, a "hillock."

7. *Soua*, "tomb." Probably the Etruscan *Suthi*, "tomb," as suggested by Dr. Isaac Taylor.

8. *Tumnia*, "rod." Probably the Ugric root *tumb*, to "strike."

9. *Toussuloi*, "dwarfs." The latter part is perhaps the Akkadian *lu*, "man," Mongol *ulut*, "mankind," or "men;" *tus* appears, perhaps, in the Tartar *tusuk*, "low." The word has, however, been compared by Ellis with the Ossetic *tyusul*, Armenian *doyzn*, "little." That it is to be divided is shown by the next.

10. *Kattouza*, a Thracian town of dwarfs (Prof. Sayce). Kat is the Medic *Kat*, "place," from a root which is common to Aryan and Turanian speech, meaning a house or shelter; *Touz* is "short," as above.

Lydian Words.

Many words given as Lydian are Aryan, and throughout Asia Minor a similar mixture of vocabularies exists—as in Armenian and Georgian.

1. *Attalos*, "cessation." Compare the Akkadian *Tillas*, "complete," from the root *Tül*, "full," which occurs in Ugric speech.

2. *Kandaules*, said to mean "dog choker"—perhaps from the old savage sacrifice of tearing a dog. Perhaps we should compare the Chinese *Chuan* for "dog," and the Tartar root *Tol*, "to twist."

3. *Lailas*, a "tyrant." Compare the Akkadian *Lala*, "ruler," Hittite *Lel*, Hunnic *Luli*, "chief."

4. *Sardin*, "year." Compare the Mongol *Zil*, Turkish *Sal*, "year," Medic *Sarak*, "time," Buriat *Sara*, "month."

5. *Targanon*, "branch." The nearest seems to be the Esthonian *türkan*, "to sprout forth."

6. *Mōos*, "the earth." In Vogul *ma* is "earth." Compare also the Sanskrit *Mahi*, the Akkadian *Ma*, Finnic *Maa*, Zirianian *Mu* (Hittite *Me*).

Phrygian Words.[1]

1. *Papa*, said to be a Phrygian god (Hippolytus), evidently means "father." Turkish *baba*, Mongol *babe*, Akkadian *Abba*.

2. *Ate*, *Atys*, Phrygian deity. Turkish *At*, Tartar *ata*, Medic and Akkadian *adda*, "father," "elder."

3. *Bekos*, "bread"—has been compared with φαγειν, "to eat."

Scythian Words.

These I find in Herodotus, who translates them.

1. *Aior*, "men." Compare the Akkadian *eri*, *uru*, "man," Turko-Tartar *er*, Mongol (Buriat) *ere*.

2. *Pata*, "slaying." Akkadian *Bat*, "slay." This is also an Aryan root *pat*.[2]

3. *Papæus*, Jupiter. Compare the Phrygian Papa.

4. *Aschy*, a drink. Compare the Tartar strong liquor called *Shanju*.

5. *Apia*, "the earth." Compare the Georgian *obai*, "country," and the Tarta *ab*, *ob*, for an abode in every sense. Akkadian *ab*, "abode."

6. *Oetosyrus*, Apollo. Compare the Mongol *ud*, Akkadian *ud*, Turkish *udun* for "day;" and Akkadian *Sir*, Mongol *Sar*, "light." Apollo being the Sun God, or "day-light."

We have here more than two dozen words referable to Turanian languages nearer to the Ugric on the west, in Lydia and Caria, and to the Tartar further east. Many more might be added from the ancient nomenclature of Asia Minor, but these may serve to show that in St. Paul's time the country was occupied by the same populations still found in Turkey and in Anatolia.

C. R. Conder.

[1] The Cilician words are mainly names of deities, including *Ma* ("the earth"?), whose high priest was called the Abakles, probably *Aba Kal-s*, "great priest." Compare the Buriat *Bo*, "priest." Akkadian *Aba*, rendered a "judge," Medic *Ibba*, "to judge," and perhaps the Malamir *Bukhu*, "priest" (Tartar *baksi*), while *Kal* (Akkadian *Gal*) is a common word for "great."

[2] The Scythians called the Amazons *Aiorpata*, or "men slayers."

ON COMPARISONS OF HIEROGLYPHICS.

The idea of comparing the emblems of the four ancient hieroglyphic systems is not a new one. I endeavoured in 1883 to compare Hittite and Egyptian. In 1880 Prof. T. de Lacouperie compared a few Chinese and Cuneiform emblems, and has added other such comparisons in 1888. An excellent paper on the subject was published by the Royal Asiatic Society in 1887, written by Mr. G. Bertin.

The accompanying figures represent many new results in detail, and, as far as I know, the Hittite and Chinese have never been compared before.

Whether these four systems developed from one original system of rude picture-writing, or whether—as some urge—they are independent, it is still useful to compare them, especially as we may thus obtain meanings for Hittite signs. But until it is proved that the grammatical signs (pronouns, particles, &c.) are the same in two systems, it cannot be said that the connection is other than remote. I find on studying the systems in detail that there was no very close connection. Neither of the four systems can be said to be borrowed from the other. They are perhaps radiating developments from one centre. The Hittite seems to be the oldest, for several reasons: 1st, because it is less developed, having no included emblems, and few signs; 2nd, because the forms are less conventionalised; 3rd, because it has apparently no determinatives.

Plate I.

The Cuneiform emblems (second columns) are taken from Amiaud's decipherment of the Akkadian texts at Tell Lo (*circa* 2500 B.C.). The Hittite sounds are obtained from Cypriote as already published.

No. 1. Hittite *An*, Cuneiform *An*, "God"—a star (*see* No. 31, Plate II).

No. 2. Cuneiform *Si*, eye. Hittite probably *Is*, *si*, or *an* (*see* No. 2, Plate II, No. 4, Plate III, No. 1, Plate IV).

No. 3. Hittite *me*, Cuneiform plural sign (*see* No. 29, Plate II, No. 36, Plate IV).

No. 4. Hittite *Kon*, Cuneiform *Nun* "prince" (*see* No. 2, Plate IV).

No. 5. Cuneiform *En*, "Lord" (*see* No. 14, Plate IV).

No. 6. Cuneiform *Ma*, "ship" (*see* No. 3, Plate III).

No. 7. Cuneiform *Bara*, "altar" (*see* No. 19, Plate III).

No. 8. Hittite probably *Ke*. Cuneiform *ik*, "open" (*see* No. 8, Plate III, and No. 18, Plate IV).

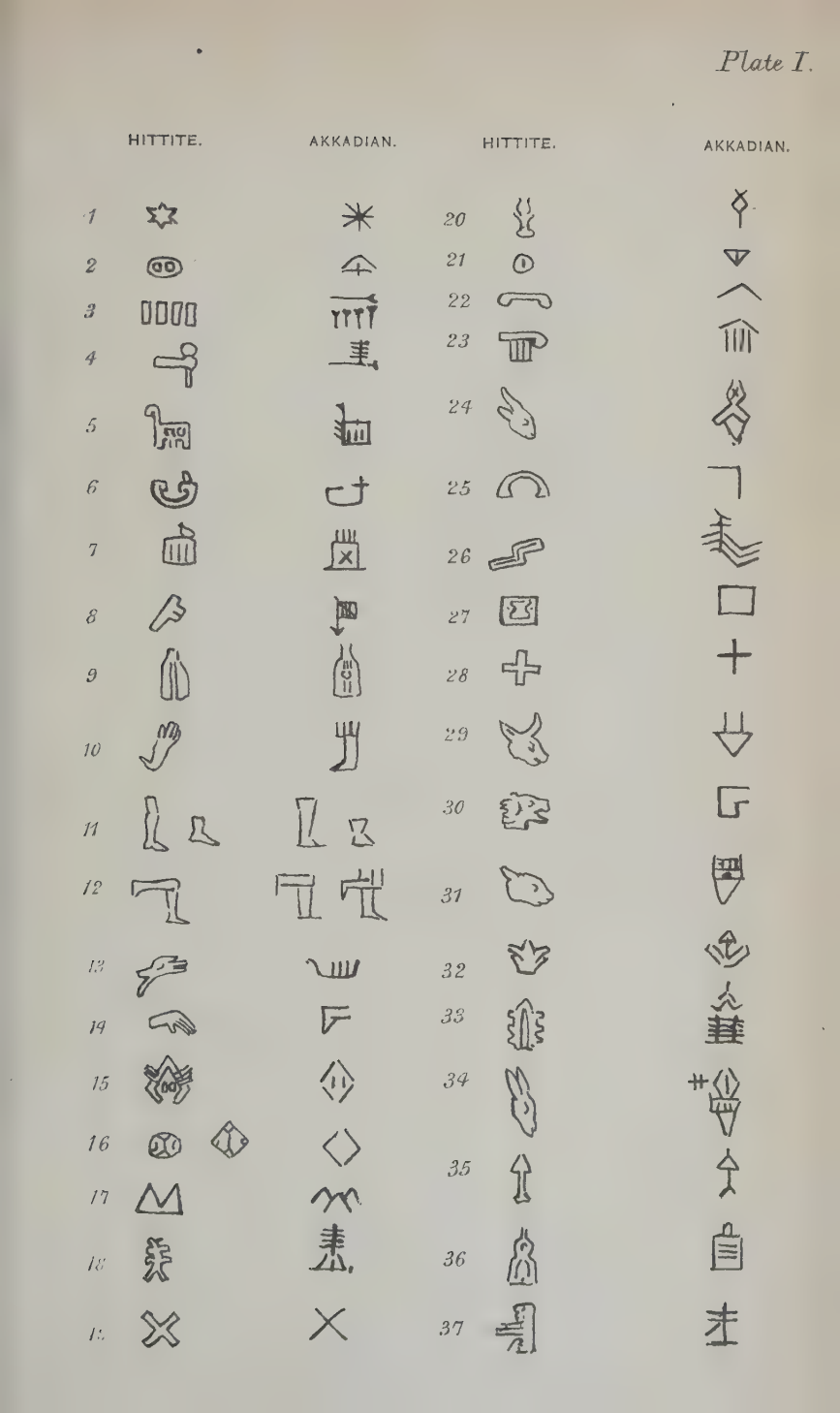
No. 9. Hittite *Ku*, Cuneiform *Aka*, "high," the royal cap.

No. 10. Hittite perhaps *Te*. Cuneiform *Da*, the hand raised (*see* No. 18, Plate II).

No. 11. Cuneiform *du*, "go," "become" (*see* No. 15, Plate II).

No. 12. Cuneiform *du*, "go" (*see* No. 15, Plate II, No. 30, Plate III).

No. 13. Cuneiform *su*, "hand" (*see* No. 1, Plate II, No. 7, Plate III).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No. 14. Hittite probably *To*, Cuneiform *Tuk* and *du*, "have" (*see* No. 5, Plate II, No. 29, Plate III).

No. 15. Hittite *Dim*, Cuneiform *Dim*.

No. 16. Hittite, probably *Tam*, Cuneiform *Tam* or *ud*, "the day," or "sun" (*see* No. 24, Plate II, No. 23, Plate III).

No. 17. Hittite *Me*, "country," Cuneiform *Mat* and *Kur*, "country" (*see* No. 6, Plate II, No. 5, Plate III).

No. 18. Cuneiform *Tur*, "abide," "rest" (*see* No. 28, Plate II).

No. 19. Hittite *No* or *Mu*, Cuneiform *bab*, "oppose" (*see* No. 26, Plate II, No. 39, Plate III).

No. 20. Hittite, probably *Pu*, Cuneiform *Pu*, "long," apparently a flower-bud (*see* No. 13, Plate IV).

No. 21. Hittite *Mo*, Cuneiform *Muk*, "female" (*see* No. 33, Plate II).

No. 22. Hittite *O* or *Pa*, Cuneiform *U*, "superior," supposed to represent the firmament (*see* No. 16, Plate II, No. 34, Plate III).

No. 23. Hittite *Re*, Cuneiform *Mi*, "dark," supposed to represent rain (*see* No. 17, Plate II, No. 24, Plate III).

No. 24. Hittite *Tar*, *Tarka*, Cuneiform *Lul*, "chief" (also "stag" in Akkadian). *Dara*, and probably *Turakhu*, is another Akkadian word for deer. *Tarka* is Turkic and Mongol for "chief" (*see* No. 23, Plate II). The stag's head stands for Tarka "chief" on the Hittite bilingual.

No. 25. Hittite *Lu*, *Le*, Cuneiform *Lū*, "yoke."

No. 26. Hittite *Ze*, *Zo*, Cuneiform *Zi*, "spirit" (*see* No. 28, Plate III).

No. 27. Cuneiform *Kar*, "enclosure" (*see* No. 11, Plate II, No. 31, Plate III).

No. 28. Hittite, apparently *lo*, Cuneiform *bar*.

No. 29. Hittite *Le*, Cuneiform *Le* or *Lu*, "bull." The bull's head occurs also in Egyptian inscriptions.

No. 30. Cuneiform *Lig*, "dog." The Hittite may be a dog or a lion.

No. 31. Cuneiform *Lu*, "sheep."

No. 32. Hittite *Te*, Cuneiform *Pa*– apparently "flower" or "herb" (*see* No. 10, Plate II, No. 32, Plate III, No. 8, Plate IV).

No. 33. Cuneiform *Sar*, apparently the sacred tree, commonly shown on the monuments.

No. 34. Cuneiform determinative for "beast."

No. 35. Hittite *Ti*, Cuneiform *Ti*.

No. 36. Cuneiform *Dib*, "tablet."

No. 37. Hittite *Ri* (and *Bil*), Cuneiform *Ri*. In both systems it occurs as the name of a deity.

Plate II.

The Egyptian emblems (in the second columns) are taken from Pierret's "Vocabulary," and in many cases occur also in Renouf's Grammar. For the most part they are used simply as determinatives, or pictures showing the *class* of the word they accompany, and as such are very common.

No. 1. The Egyptian is used for the letter *t*, and for "hand."

No. 2. Egyptian determinative for *eye*, with the words *sai* and *an*.

No. 3. The Egyptian is a pot used for the word *nut* and for letter *n*, and attached to the words *a*, "wash," *aua*, "vase." The sound in Hittite is also *a*, from *a*, "water."

No. 4. Hittite and Egyptian royal cap.

No. 5. Egyptian determinative for "touch," "give" (*see* back, No. 14, Plate I).

No. 6. Egyptian determinative for countries. Hittite *me*, "country."

No. 7. Hittite *ga* or *ka*. Egyptian *hik* and *u*.

No. 8. Hittite *sa*. Egyptian determinative for the word "sickle;" also used for letter *m*.

No. 9. Hittite *Ta* ("beat"). Egyptian determinative for "words implying strength" (Renouf). It accompanies the Egyptian word *ta*, "to strike." (In Chinese also *ta* means "beat.")

No. 10. Hittite *Te*. Egyptian determinative of plants (Renouf).

No. 11. Egyptian determinative for house, accompanies the word *i*, "house."

No. 12. Egyptian determinative for ship.

No. 13. Egyptian determinative for "all actions performed by the mouth, such as eating, drinking, speaking" (Renouf). Hittite, probably *En* or *Ni* ("prayer" in Akkadian; Medic *Na*, "speak").

No. 14. Egyptian determinative for head, top, or front.

No. 15. Egyptian determinative for "words implying motion" (Renouf). The single leg stands for "walk," "climb," &c. (Pierret).

No. 16. Egyptian emblem for heaven (*Pe* and *Pet*). (*See* back, No. 22, Plate I.)

No. 17. Hittite *Re*. Egyptian determinative for sky, rain, air.

No. 18. Hittite, probably *Te*. Egyptian determinative for "give."

No. 19. Egyptian determinative for "twins" and "brotherly union" Pierret, "Vocab.," pp. 386, 510).

No. 20. The Egyptian emblem of the rising sun (Renouf).

No. 21. Egyptian emblems for "Isis," "throne," &c.

No. 22. Egyptian emblem for "monument."

No. 23. In Hittite Tarka, in Egyptian *hik*, both used to mean "chief" (*see* back, No. 24, Plate I).

No. 24. Egyptian emblem for "sun," "day," &c.

No. 25. The second Egyptian emblem accompanies the words *sau*, *sa*, "cut."

No. 26. The Egyptian determinative for things, "contrary."

No. 27. The Egyptian determinative for "flowing" (*e.g.*, "blood," "wound," &c.).

No. 28. The Egyptian emblem of "stability" (*see* back, No. 18 Plate I).

No. 29. The Egyptian plural (Renouf). The Hittite emblem is also a plural with sound *Me*.

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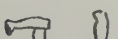
15		
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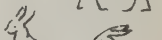
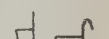
20		
21		
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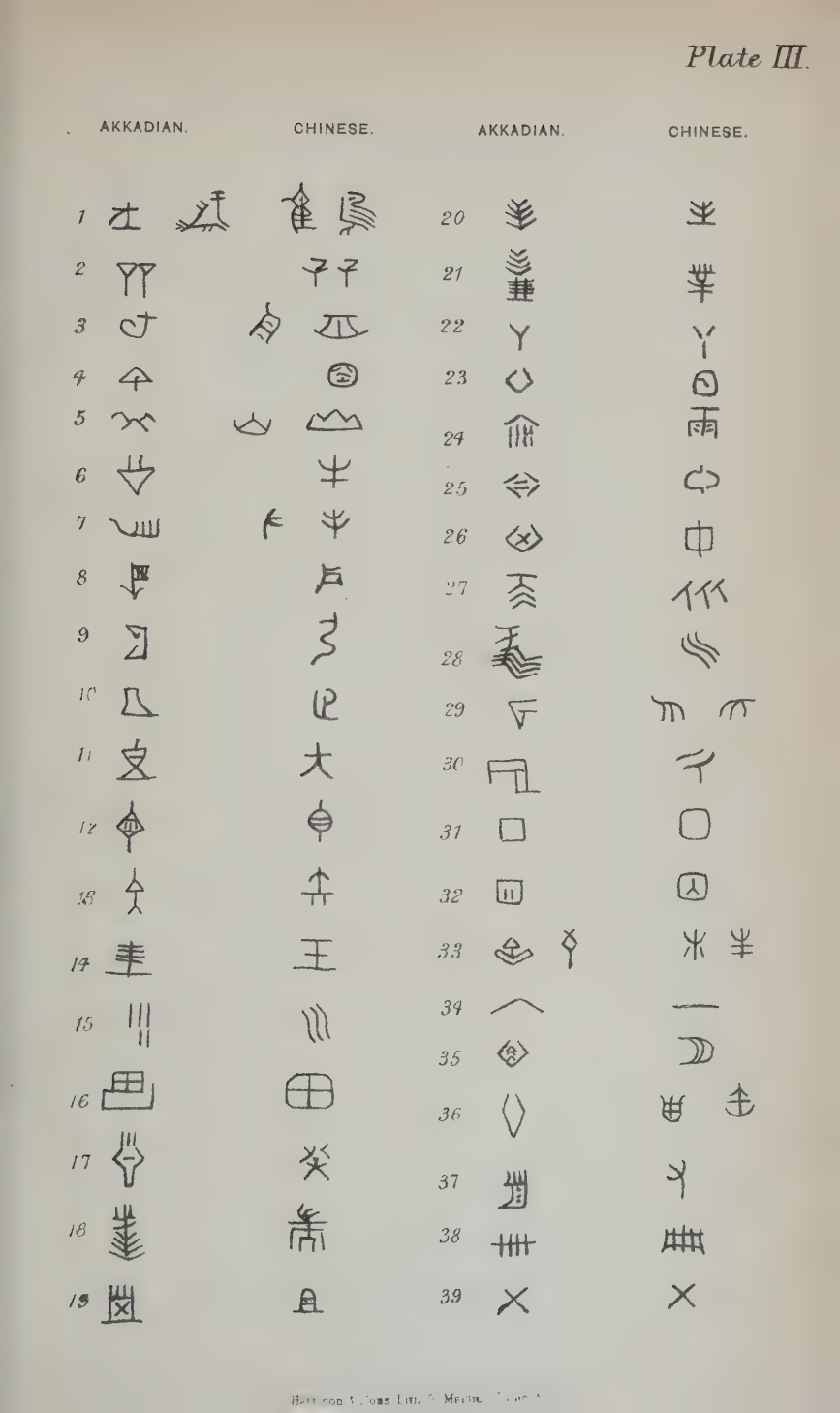

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No. 30. The Hittite emblem occurs as the name of a deity. The Egyptian stands for "day" (Pierret, "Vocab.," p. 152).

No. 31. Egyptian emblem for "star" or "god," &c. (*see* back, No. 1, Plate I).

No. 32. The Egyptian emblem of life. The Hittite *Ra*, apparently meaning "power." It is also suspended to the necklet of Assyrian kings.

No. 33. The Egyptian emblem accompanies the word *Mat*, "mother" (*see* back, No. 21, Plate I).

No. 34. Hittite, probably *Ti*. Egyptian has the sound *aa*, and is comparatively rare.

No. 35. The Egyptian determinative for pyramid, tomb, monument, &c. (Pierret.)

This comparison is purely ideographic, as Egyptian and Hittite are not of the same group of languages; but out of about 70 common determinatives used in Egyptian 33 have here been compared with Hittite emblems. Other emblems, such as the bull's head, the eagle, the lion, the serpent, the corn ear, the altar, &c., might be added, but are less interesting.

Plate III.

The cuneiform to the left is taken, as before, from the Tell Lo monuments. The Chinese is copied from the ancient *Seal* character, which occurs on monuments in 827–782 B.C. (*see* J. R. A. S., North China Branch, 1874, p. 133), and is given by Dr. Chalmers ("Structure of Chinese Characters," 1882) with the Cantonese sounds, representing one of the oldest Chinese dialects ("Eitel Cantonese Dict.," 1877, p. xii). Of the 39 emblems compared, the first 10 are given by Prof. T. de Lacouperie in his recent paper on this comparison (1888). He gives about 30 in all, but I have omitted those which seem to me doubtful on various accounts, and the remaining 29 are, as far as I know, new suggestions.

No. 1. Cuneiform *Khu* determinative for "bird," and *Nam*, for "swallow" (as the latter is explained by Mr. Houghton). Chinese *chiu* for a short-tailed bird, and *tiu* for a long-tailed bird (Chalmers). Prof. de Lacouperie compares *Khu* with *tiu*.

No. 2. Cuneiform *tur*, "son." Chinese *ma*, "twins." Prof. de Lacouperie compares *Tur* with *tok*, "son," which has only one, instead of two emblems.

No. 3. Cuneiform *Ma*, "ship." Chinese *Chau*, "a boat." The second Chinese emblem is not in Chalmers.

No. 4. Cuneiform *Si*, "eye." Chinese *muk*, "eye."

No. 5. Cuneiform *Kur*, "mountains." Chinese *shan*, "mountains."

No. 6. Cuneiform *Gut* (and *lu*) "bull." Chinese *ngo*, "bull."

No. 7. Cuneiform *Su*, "hand." Chinese *tso*, "left hand" (Chalmers, No. 37), *shau* or *seu*, "the hands" (No. 113). Prof. de Lacouperie gives the second.

No. 8. Cuneiform *Ik*, "open." Chinese *hu*, "door."

No. 9. Cuneiform *Ban*, "bow." Chinese *kung*, "bow."

No. 10. Cuneiform *du*, "go." Chinese *to* (or *tsuuk*), "foot."

The additions which I propose are—

No. 11. Cuneiform *us*, "man." Chinese *tai*. This is purely a pictorial comparison.

No. 12. Cuneiform *zir*, "light." Chinese *pak*, "white."

No. 13. Cuneiform *ti*, Chinese *chih*, "arrow" (*see* No. 22, Plate IV).

No. 14. Cuneiform *nun*, "prince." Chinese *wong*, "king." Compare the Akkadian *uwun*, "prince."

No. 15. Cuneiform *i*, "pure," representing, perhaps, rain. Chinese *chun*, "stream."

No. 16. Cuneiform *Ra*, "irrigate"—a field and water channel. Chinese *tin*, "a field." The relation, like the preceding, is purely pictorial.

No. 17. Cuneiform *Ne*, "fire." Chinese *im* (and *yen*) "flame."

No. 18. Cuneiform *ga*, "staff," apparently a reed. Chinese *tiin*, a "young plant."

No. 19. Cuneiform *bar*, "altar." Chinese *tsii* "altar."

No. 20. Cuneiform *sana* and *se*, "corn." Chinese *shang*, "growth."

No. 21. Cuneiform *tir*, "jungle." Chinese *chok*, "bush."

No. 22. Cuneiform *tar*, "divide." Chinese *a*, "forked."

No. 23. Cuneiform *ud*, "sun." Chinese *yat*, "sun." (N.B. Mongol *ud*, "day.")

No. 24. Cuneiform *mi*, "dark." Chinese *yii*, "rain."

No. 25. Cuneiform *suk*, "baggage." Chinese *pāu*, "bundle."

No. 26. Cuneiform *sa*, "middle." Chinese *chung*, "centre."

No. 27. Cuneiform emblem of plural. Chinese *yam*, "many."

No. 28. Cuneiform *Zi*, "spirit," "breath." Chinese *hi* (or *chi*), "vapour," "breath."

No. 29. Cuneiform *tu*, "have." Chinese *cheung*, "take hold," and *chau*, "clutch."

No. 30. Cuneiform *du*, "go." Chinese *chik*, "step."

No. 31. Cuneiform *Kar*, "enclosure." Chinese *wai*, "enclosure," or "round."

No. 32. Cuneiform *Dur*, "bondage." Chinese *taau*, "prisoner."

No. 33. Cuneiform *Pa* (? "flower"), *Pu* (? "bud"). Chinese *put*, "vegetation;" *fung*, "vegetation."

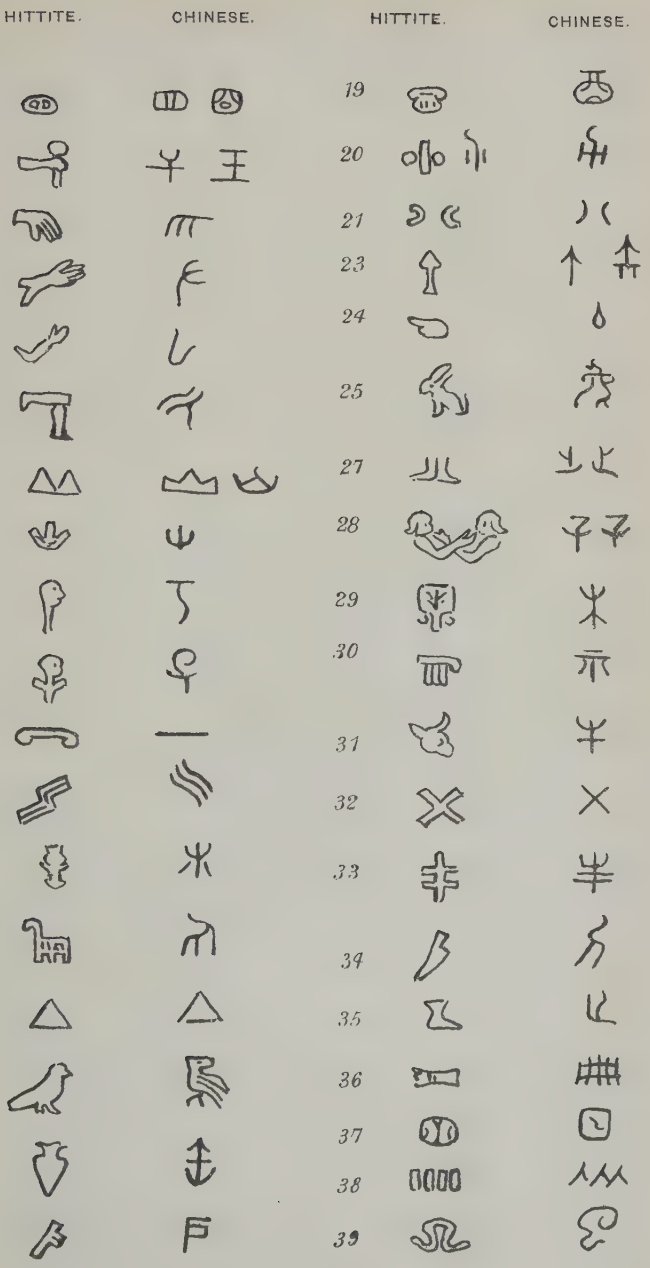
No. 34. Cuneiform *U*, "above." Chinese emblem of heaven and all superior things.

No. 35. Cuneiform *idu*, "month." Chinese *iit*, "month." The words are alike, but the emblems have no resemblance.

No. 36. Cuneiform *Khi* and *Sar*, "a measure," perhaps a vase. Chinese *chze*, "vase," and *fau*, an "earthen jar" (*see* No. 17, Plate IV).

No. 37. Cuneiform *a*, "hand." Chinese *yau*, "right hand." The sounds are somewhat alike.

No. 38. Cuneiform *As*, a "curse" or "charm;" supposed to mean



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something "bound." Chinese *chak*, representing a "bundle of documents."

No. 39. Cuneiform *bab*, "opposite." Chinese *ng*, used with words for "crossing" and "disaster." (Compare the use of this emblem in Egypt, No. 26, Plate II.)

A few of these comparisons are sufficiently remarkable, though many are only pictorial. The coincidence of sound is only found in a very few cases. The emblems are all common ones in the two systems, but it must not be forgotten that there are many important emblems in the two systems which have no connection, and that the compounds and numerals differ entirely. The connection is remote, and is with the earliest Akkadian emblems, which all stand upright in the line.

Plate IV.

This comparison of 37 emblems is new, and for the most part it results from the facts gathered in comparing the known systems as given in the preceding tables.

No. 1. Hittite *Si*, *Is*, or *An*, Chinese *muk*, "eye."

No. 2. Hittite *Gon*, Chinese *Kon* and Chinese *wong*, "prince."

No. 3. Hittite *To*, Chinese *chau*, "clutch."

No. 4. Hittite *Se*, Chinese *tso*, "hand."

No. 5. Hittite, perhaps *Te*, Chinese *kwang*, "the arm."

No. 6. Hittite, perhaps "go," "run," Chinese *chik*, "stride."

No. 7. Hittite *Me*, "country." Chinese *shan*, "mountains."

No. 8. Hittite *Te*, Chinese *chit*, "sprout."

No. 9. Hittite *Gu* and *Vo*, Chinese *hau*, "speech."

No. 10. Hittite only once known (J. iii, last line), where the sound is unknown; presents a head with two small arms. Chinese *tsze*, "small," "child," used phonetically and also radically (Chalmers, p. 76).

No. 11. Hittite *U* or *pa*, Chinese emblem of heaven.

No. 12. Hittite *Ze* or *Zo*, Chinese *hi*, "breath."

No. 13. Hittite *pu*, Chinese *put*, "vegetation."

No. 14. Hittite, probably *En* (Khitai *Hain*), "throne," or "lord." Chinese *ün*. Said, however, to mean a "rolling thing."

No. 15. Chinese *tsap*, "collection," apparently "mound."

No. 16. Hittite, probably *Zi* or *Uz*, Chinese *tiu*, "bird."

No. 17. Hittite *Pe*,[1] used phonetically. Chinese *fau*, also used phonetically as well as radically.

No. 18. Hittite, probably *Ke*, Chinese *hu*, "door," a key.

No. 19. Hittite *a*, "water," used phonetically. Chinese *yau*, "jar," used phonetically.

No. 20. Hittite *Ne*, "male," used phonetically. Chinese *lik*, "strength," used phonetically.

[1] Appears in the combination *Sag-pe*, "charm" (J. iii). *Pa*, *Ba*, in Akkadian, *Boi* in Tartar and Mongol, for "incantation." *Sag-ba* means, apparently, "chief charm."

No. 21. Hittite, perhaps *Pi*, Chinese *pat*, used for "division."

No. 22. Hittite *ti*, used phonetically. Chinese *ting*, an important phonetic, and *chi*, "arrow."

No. 23. Hittite "flame" (*gi* ?), Chinese *chii*, "flame."

No. 24. Chinese *tu*, "rabbit," the emblem of the moon. In Hittite it is the name of a deity.

No. 25. Chinese *put*, "spread," "trample," used for "send."

No. 26. Chinese *ma*, "twins. (Compare the Egyptian emblem for "twins," No. 19, Plate II.)

No. 27. Chinese *muk*, "tree," is not unlike the Cuneiform *mu*. The Hittite appears to be a fruit tree such as is commonly shown on engraved gems.

No. 28. Hittite *Re*, Chinese *Yü*, "rain" (*see* No. 23, Plate I ; No. 17, Plate II ; No. 24, Plate III).

No. 29. Bull in each system.

No. 30. Chinese emblem for "contrary" (*see* No. 19, Plate I ; No. 26, Plate II ; No. 39, Plate III).

No. 31. Hittite *Pa*, Chinese *fung*, "vegetation."

No. 32. Chinese *tu*, "knife," common as a phonetic and also as a radical.

No. 33. Hittite, probably "go," Chinese "foot" (*see* No. 11, Plate I ; No. 10, Plate III).

No. 34. See what is said of No. 38, Plate III.

No. 35. Hittite, probably the sun, as is the Chinese.

No. 36. Hittite plural, Chinese "many" (*see* No. 3, Plate I ; No. 29, Plate II).

No. 37. Chinese *fai*, "viper."

These curious comparisons give more instances of similarity of sound than we get in Plate III, but none of the Hittite "weak roots" seem to be represented, and the connection is evidently somewhat remote. In the cases in which an emblem can be traced with the same ideographic meaning in Egyptian, in Cuneiform, and in Chinese it is only natural to suppose that it may have been used in Hittite with the same idea. This is confirmed in such a case as to "have," "take," "touch" by the sound obtainable for the Hittite from the Cypriote.

Thus I think we may conclude[1] that in Hittite, 1, star (*an*), means "God ;" 2, four strokes (*me*), "plural ;" 3, throne (*en*), "majesty ;" 4, foot (*du* ?), "go ;" 5, hand open (*se*), "favour;" 6, hand grasping (*to*), "have," "take ;" 7, saltire (*no* or *mu*), "opposition ;" 8, firmament (*u*), "that, above ;" 9, zigzag (*zo*), "breath," "wind," "spirit ;" 10, hand with sceptre (*gon*), "rule ;" 11, hand to mouth (*En*), "saying ;" 12, hand with stick

[1] Many of these values I obtained already in 1883 by comparing Egyptian and Hittite (*see Quarterly Statement*). Shortly afterwards Wright's "Empire of the Hittites" was published, and in this Prof. Sayce gives the following values : foot, "go ;" hand grasping, "take ;" firmament, "superiority ;" hand to mouth, "speech." He also first recognised the deer' head for chief, and the emblem for country.

(*ta*), "beat," "cause," or "power;" 13, rain (*re*), "flow," perhaps phonetic; 14, two faces opposed, "twins;" 15, deer's head (*tarka*), "chief;" 16, jar (*pe*), probably phonetic; 17, hare or rabbit, probably the moon; 18, water pot (*a*), "water," and used phonetically; 19, two feet opposed, possibly "send;" 20, a bundle, or scroll, perhaps "charm." These conclusions in many cases seem independently established by other considerations (see my previous paper on the "Hittite Language"), but we obtain several valuable hints by observing the signification of similar emblems in the other systems, and there is at least a possibility that they all really grew out of one primitive picture system which was invented by the Turanians in Asia. Among the most certain Hittite signs we may now enumerate those for "god," "country," "sun," "king," "female," "male," "bull," "lion," "chief" (*Tarka*), "sheep," "tablet," "flame," "have," "go," "house," "spirit," "water," "beat," "grow," "ship," "head," "flow," "majesty," "moon," "life," "power," "word," "tree," "twin," "snake," with the personal pronouns, case endings, plural, verbal ending (*mak*), adjective ending, and negative—as mentioned in my previous paper ("Hittite Language"). The system is ideographic with phonetic additions—or agglutinated particles—but apparently with very few, if any, determinatives, and the signs enumerated above as explicable amount to 60 in all out of 120, including all those most commonly found, the sound being known in 40 cases.

C. R. C.

KIRJATH JEARIM.

By an oversight, which I fear is my fault, on page 113 of the "Names and Places," the claim of the Rev. A. Henderson to the identification of Kirjath Jearim at *'Erma* has been left unnoticed. In "Tent Work in Palestine" I proposed Soba, but Mr. Henderson convinced me that the border of Benjamin must have passed far south of the points then supposed to have been long since fixed. In 1881 I revisited 'Erma to ascertain the character of the site, and found (as noted in the Memoirs) that Mr. Henderson's view agreed well with local indications. A reference should be made in future editions to his papers, *Quarterly Statement*, January, 1878, p. 19, October, 1878, pp. 196–8.

C. R. Conder.

THE CONDUIT NEAR THE POOL OF BETHESDA.

Herr Schick, in his account of the Pool of Bethesda, describes the conduit lately discovered on the north of the Birket Israel; he says it is "in some places covered with thick flagging stones, in others with a kind of arch, consisting only of two stones placed in a slanting position one

against the other." This I take to be a very old form of an arch, if that term can be applied to it. The Queen's Chamber, in the great pyramid, is roofed with large stones placed exactly in this position, and above the lintels of the King's Chamber is a covering of the same kind. The entrance to the pyramid, although covered with flat stones, is protected by others above placed in the slanting position described by Herr Schick. In Stuart's "Athens" there is a representation of an old arch at Delos, which is similar. When I visited Solomon's Pools near Bethlehem, I was much interested in finding a rock-cut conduit, near to what is called the "Sealed Fountain," which was roofed in this manner. The entrance to this conduit was roofed with an arch, which I supposed was modern in comparison with the more primitive construction of slanting stones. Sir Charles Warren has pointed out from the Talmud that one of the gates of the Temple—the gate Tadi—was formed in this manner—"all the gates had lintels except Tadi; there two stones inclined one upon another."

Rock-cut Channel, and Stone-roofed Conduit Solomon's Pools W. Simpson

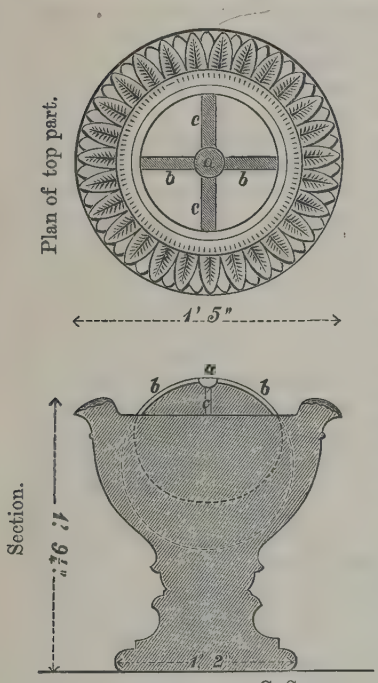
It is impossible to assume any definite age from this peculiar form, but we may accept it as an indication of at least some antiquity; if even an approximate date could be formed, it might be of considerable value in some of the archæological questions connected with Jerusalem. With this is a reproduction of my sketch of the Rock-cut Conduit at Solomon's Pools.

William Simpson.

THE MIDDLE OF THE WORLD, IN THE HOLY SEPULCHRE.

Herr Schick has sent home very careful drawings of the particular object which marks, in the Greek Church of the Holy Sepulchre, the Middle of the World, or, as it is at times called, the Centre of the Earth. It stands on the mosaic floor under the dome of the Greek Church, a few paces to the east of the Holy Sepulchre, and is formed now of a vase, 1 foot $9\frac{1}{4}$ inches high, with a stone ball placed on the top; this stone is round on the top, with stripes of another kind of stone inserted to mark the cardinal points.

Herr Schick describes the vase, or "cup," as he calls it, as being "of the reddish native Jerusalem stone; the ball is rather of a more white kind, and the stripes *a a b*, with the [pole] or small ball in centre, is of black stone."



C. Schick.

a. Seems to be the pole.
b b. The Equator.
c c. The Meridian.

The first reference which has been applied to the Middle of the World is contained in Ps. lxxiv, 12: "For God is my King of old, working salvation in the midst of the earth." This has been quoted by later writers in way of explanation; but the words may have a sense of their own, and had no application to the Middle of the World as understood afterwards. The idea of Jerusalem being the Middle of the World is at least as old as the fourth century. In that quaint old book, "The Works of the Reverend and learned John Gregory," who was chaplain to the Bishop of Salisbury in the time of Charles I, there is a chapter on the subject of "Noah's Prayer," and the writer quotes St. Ephrem in regard to the preservation of Adam's body and its burial in "*the Middle of the Earth*, by a Priest of the most high God. For *Adam* prophesied this reason for it, that there should be the Redeemer of him and all his Posterity. The Priest who was to officiate at this Funeral they say was *Melchisedec*, and that he buried this body at *Salem;* which might very well be the middle of the habitable world as then, and that it was indeed so afterwards, it hath been told you before;" p. 118. The notion of the Middle of the World is somehow connected with the supposition that Adam was buried at the spot; or at least near to it; the tradition is that he was buried under the rock of Calvary. The Mohammedans have a similar tradition about Adam having been buried in the Middle of the Earth. El-Masudi, in his "Meadows of Gold, and Mines of Gems," says, "God said to Sám"—Shem—"'I will preserve him for ever, whom I make the guardian of the body of Adam.' Sám buried the coffin of Adam in the Middle of the Earth, and appointed Lamech as guardian." In this case Jerusalem was not the middle, for the Mohammedans believe that Adam was buried in

Mosque of El-Khayf, near Mecca. These two traditions seem to point to the conclusion that it is the supposed presence of Adam's body which gives the character to the spot.

St. Ephrem's words would show that the tradition in the Christian Church is as old at least as the fourth century. At a later period the references are numerous. Arculf visited Jerusalem about 700 A.D., and he "observed a lofty column in the holy places to the north, in the middle of the city, which, at mid-day at the summer Solstice, casts no shadow, which shows that this is the centre of the earth." One would suppose from the words that this column was somewhere in the town, and not in the Sepulchre; but the descriptions of the mediæval writers are very difficult to reconcile with each other. Compare the above with what Bernard the Wise says, who writes about a century and a half later; he describes four churches at the Holy Sepulchre, and between "is a parvis without roof, the walls of which shine with gold, and the pavement is laid with precious stone; and in the middle four chains, coming from each of the four churches, join in a point which is said to be the Middle of the World."

Sæwulf, date A.D. 1102, says, "At the head of the church of the Holy Sepulchre, in the wall outside, not far from the place of Calvary, is the place called Compas, which our Lord Jesus Christ himself signified and measured with his own hand as the Middle of the World;" to this he adds the words of Ps. lxxiv, 12: "For God is my King of old, working salvation in the midst of the earth." The "Compas" is one of the names the spot is known by, as if it merely served to indicate the cardinal points, like a compass on a map. Herr Schick's drawing and description shows that it preserves this character to the present day. Sir John Maundevile, it need scarcely be stated, is not a reliable authority, still his book is full of what were current traditions of the time. His date is 1322 A.D., he says, "And in myddes of that Chirche is a Compas, in the whiche Joseph of Aramathie leyde the Body of our Lord, whan he had taken him down of the Croys; and there he wassched the Woundes of oure Lord: and that Compas, seye men, is the Myddes of the World." Chap. vii.

Another title which it had was the "Navel of the World;" in the maps of the middle ages this term is often given. The Abbot Daniel gives it this name; his date is A.D. 1106–1107. "Behind the altar, outside of the wall, is the 'Navel of the Earth,' which is covered by a small building on [the vault of] which Christ is represented in mosaic, with the inscription, 'The sole of My foot serves as a measure for the heaven and for the earth.'" (*Palestine Pilgrim's Texts; The Abbot Daniel*, p. 13.) Sandys, who was in Jerusalem in 1611, says, "Towards the west end from each side equally distant, there is a little pit in the pavement [which they say] is the Navell of the World, and endeavour to confirm it with that saying in Scripture, '*God wrought his salvation in the midst of the earth*,' the which they fill with holy water." This "little pit" of Sandys' is very different from the "lofty column" of Arculf's description. At

present it is a vase with a curved stone projecting, but Herr Schick's section shows that holy water might still be poured on it, and find a receptacle.

WILLIAM SIMPSON.

THE SITE OF EBENEZER.

MANY years ago, after considerable study of the subject and repeated examination of the ground, I formed the opinion that the place of Ebenezer is now occupied by the village of Beit Iksa, and, notwithstanding that another site has been advocated by distinguished investigators, I still venture to think that this is the only spot which satisfactorily meets all the requirements of the case.

1. The spot should be "between Mizpah and Shen," and, as we may suppose, be a prominent and conspicuous spot. Such a spot is Beit Iksa. Taking Neby Samwîl to be Mizpah, and Deir Yesin to represent Shen, an examination of the map will show that a line drawn from one to the other would intersect this village. It is also remarkable that owing to an opening in the hills a person standing at Deir Yesin and looking towards Neby Samwîl has Beit Iksa in full view, although at a short distance the right or left it is not visible at all. From many other points it is very conspicuous, owing to its position near the summit of a hill abutting on the great valley of Beit Hannîna, which is there very open.

2. The locality should be adapted for the camping ground of a large army (1 Sam. iv, 1), have a supply of water, be easily defensible, so situated as to render communications with the interior of the Israelite territory easy, and afford a ready means of retreat in the event of an unsuccessful battle with the Philistine invaders. All these characterise the position of Beit Iksa. The hill on which it is built is nearly surrounded by deep valleys, whose steep, and in some parts precipitous, sides render the place almost impregnable in that direction, whilst a narrow ridge connects it with the only road along which the Philistines could march to the attack, which road, moreover, would expose the flank of the attacking force to an assault from the side of Mizpah. There is some water at the place itself, still more at Neby Samwîl, and an unlimited supply at the neighbouring fountain of Lifta, which must have been well within the Israelite lines.

3. There should be in the near neighbourhood some spot meriting the name of Aphek, the stronghold, in which the Philistines could securely encamp, and from which they could make their attack on the Israelite position. Such a spot is Kŭstŭl, *castellum*, which commands the modern road between Jerusalem and Jaffa. To the north of the miserable hamlet called by this name there is a broad plateau which affords evidence of having been used for a camping ground in ancient times, being still

surrounded by the remains of a rampart of large stones. From this position the Philistines could march in great security along the summit of the hill, past the site of the present Beit Surîk, until they came to where Biddu now is, when turning to the right they could direct their attack against either Mizpah or an enemy on the hill to the south, where Beit Iksa is situated.

4. The place should be so situated that a runner could reach Shiloh from it in a few hours. "There ran a man of Benjamin out of the army and came to Shiloh *the same day*," bearing news of the defeat of the Israelites, and loss of the ark. From Beit Iksa this might be accomplished by an eager and active messenger in four hours, or less ; the distance being about eighteen miles. From Deir Abân Shiloh is eleven or twelve miles further.

5. Mizpah should be so situated that an attacking force, if badly beaten, seized with panic, and thinking only of escape to its own territory in the south-western plain, would naturally flee down the valley which passes "under Beth Car," and that the pursuing Israelites, especially if they happened to be imperfectly armed (Josephus, Ant. 6, 2, 2), would not deem it prudent to follow the fugitives further than that. The valley which divides the hill of Beit Surîk from that on which Beit Iksa stands affords such a means of retreat from Neby Samwîl, and it was probably down this valley, past 'Ain el 'Alîk and 'Ain Beit Tulma, that the terrified Philistines (2 Sam. vii, 10, 11) reached the great watercourse which they knew would conduct them to their own country. Pressed by their pursuers, they would rush on by Motza (Kŭlonîeh) under their late camping ground at Aphek, over the boulders and rocks in the bed of the wady, and through the olive gardens at its sides, until they came "under Beth Car," which may be taken to be the village now called 'Ain Karim, where their foes would give up the pursuit, lest, becoming entangled in the narrow and stony valley, they should expose themselves to great risk in the event of the discomfited host rallying and turning upon them.

It may be objected to this identification that Neby Samwîl has never been *proved* to be Mizpah, Deir Yesin Shen, or 'Ain Karim Beth Car. Yet, when all the circumstances connected with the events narrated being taken together support this theory ; when it is found that the ancient names of two of the places are still retained ; when it is remembered that the position of Neby Samwîl and the tradition connecting it with that prophet are by almost all investigators held to favour the supposition that it is Mizpah ; and when it is considered that the identification of each of these four places in a very remarkable manner supports that of the others, there is surely a strong presumption that we need go no further in search of the site of this famous monument of the last of Israel's Judges.

It may not be altogether idle to enquire why Samuel placed his memorial "between Mizpah and Shen" instead of at Mizpah. The latter was not only a very conspicuous spot, as its name implies, but it was also a seat of government, and a centre of the religious life of the people. It

was not to Shiloh, where the Tabernacle was, but to Mizpah that Samuel gathered all Israel and drew water and poured it out before the Lord and prayed to the Lord for them. Perhaps the answer to such an enquiry is, that he placed his monument where the ark of God had once stood. We are taught in the second book of the Chronicles (viii, 11) that a place whereunto the ark of the Lord had come was regarded as holy, and what more natural, after the signal deliverance which had been experienced, than that the great ruler and guide of the nation should erect "the stone of help" upon the spot once sanctified by the sacred emblem of the Divine strength? Josephus tells us the stone was called *ισχυρος*, "the stone of *strength*." In Psalm lxxviii, 61, we have "and delivered *his strength* (*i.e.*, the ark) into captivity;" and again in 2 Chron. vi, 41, "arise, O Lord God, into Thy resting place, Thou and the *ark of Thy strength*;" in the Septuagint *ἡ κιβωτος της ἰσχυρος σου*. If the memorial came to be called in late times by its Greek name, it is not impossible that in *Iksa*, a word the derivation of which no one seems to know, we have a corruption of *ischuros*, like 'Amwas of Emmaus, Nablus of Neapolis. I have heard the place called Beit Iska, and a Mohammedan Sheikh once told me that that is the right name. The point is not of importance. The tendency of the Arabs to transpose consonants is well known.

It would seem that this idea of Ebenezer having marked the place on which the ark was once set misled Eusebius and his translator into supposing that the monument occupied the spot to which the Philistines brought back the ark. It is needless to say that there is no indication of this in the Bible; and it may reasonably be supposed that if Samuel had erected his trophy at Bethshemesh, or in the field of Joshua the Bethshemite, the narrative would have said so.

I have often questioned with myself whether these struggles with the Philistines did not (as some seem to suppose) take place nearer to the Philistine frontier than Neby Samwîl and Beit Iksa are. But I find no confirmation of this suggestion in the sacred text. Other important battles against the same foes took place still further in the heart of the Israelite country, as at Michmash and on Mount Gilboa.

THOMAS CHAPLIN, M.D.

NOTE.

Dr. Chaplin having kindly sent me the proof of his paper on Ebenezer, I have only one or two remarks to offer on the subject.

I do not hold it to be proved that Deir Abân is Ebenezer, but, as I have pointed out in the "Memoirs," Deir Abân is the place which Jerome supposed to be Ebenezer. It is quite possible that Jerome was wrong in this as in other cases. The site of Mizpah is uncertain, as it may be either at Neby Samwîl or perhaps at Shâfât. The identity of Shen and Deir Yasin seems to me doubtful, because names with Deir preceding are usually of Christian origin. 'Ain Kârim is, I believe, the Biblical Beth

Haccerem, but it might be Beth Car also. On two occasions I have searched the country south of Neby Samwîl, hoping to find some monument such as Ebenezer, but we never found anything of the kind. I agree with Dr. Chaplin, however, in thinking that the distance from Deir Abân to Shiloh is an objection to the 4th century traditional site.

C. R. C.

ANTIOCH IN 1051 A.D.

In a recent number of the *Quarterly Statement* (April, 1888, p. 66) Mr. Greville Chester has given an interesting account of the extant ruins of Antioch. The modern Turkish town, which Mr. Greville Chester visited during the autumn of last year, has preserved but few remains of the old Byzantine capital of the East. Earthquakes, for which the territory of Antioch has always been ill-famed, have thrown down most of the ancient buildings, and, for the rest, the Turks have destroyed the great city walls and carried off the stones of both temples and churches to build into their hovels.

Of the great Christian city, while still in the hands of the Greeks, and prior to the Arab conquest and the subsequent Latin occupation, so few records have come down to us that I have thought the following account, written during this early period by the Physician Ibn Butlân, may be worthy of publication.

During the centuries that succeeded the first Arab conquest Antioch, more even than the other great towns of Syria, suffered by the fortunes of war. Previous to that epoch, though sacked by the Persian Chosroes, Sapor, in A.D. 260, she had remained, without rival, the Eastern capital of the Byzantine Cæsars. In 635, however, Antioch shared the fate of all other places in Northern Syria, and fell into the hands of the all-conquering Arabs; but, unlike the cities and territories to the south, Antioch, together with Adana, Tarsus, and Mopsuestia, was retaken before thirty years had elapsed by the army of Nicephorus Phocas (A.H. 353, A.D. 964).[1] During the next hundred and twenty years (A.D. 964 to 1084) Antioch remained to the Byzantines, resisting all the attacks of the Muslims, and it was during the latter part of this period that the city was visited by Ibn Butlân.

In 1084 the citadel was at last betrayed into the hands of Sulaîmân ibn Kutlimish, the Saljûk Sultan of Iconium. Fourteen years later, however, Antioch was retaken by the first Crusading armies, in 1098, after a siege which had lasted nine months, and which had been characterised by many extraordinary and miraculous events. Antioch then remained a Christian principality for the next hundred and eighty years, but in the end, after the Franks had been driven out of all the remainder of Syria, this last stronghold, too, fell (1268 A.D.) before the arms of the Egyptian Sultan Baibars, and it has since remained in the hands of the Muslims.

[1] See Gibbon, ch. lii, end.

The present account, descriptive of the city about A.D. 1051, while still (after the first short Arab occupation) in the hands of the Byzantines, is translated from the Arabic text given in Yâkût's great "Geographical Dictionary,"[1] which latter work was written in A.D. 1225. Yâkût quotes the account verbatim from the "Epistle" (*Risâlah*) which Ibn Butlân addressed to his friend, Abu-l Husain Hillâl ibn al Muhsin as Sâbî, at Bagdad. The "Epistle" was written "in the year 440 and odd," says Yâkût; the date, however, mentioned incidentally in the course of the narrative, shows that Ibn Butlân must have passed through Antioch during the year 443, *i.e.*, A.D. 1051. Ibn Butlân was a well-known Christian Arab physician, and a native of Bagdad. In A.H. 439 (A.D. 1047) he set out from that city to visit his Egyptian rival, the physician Ibn Rudhwân, at Cairo, and, going thence to Constantinople, took his return journey through Antioch. Here, age and the vanity of human wisdom caused him to abandon the world, and he became a monk, dying very shortly afterwards at Antioch, in the year 444 A.H. (1052 A.D.).[2]

In Hajji Khalfah's "Bibliographical Dictionary" mention is made of a medical work by Ibn Butlân which appears to have enjoyed some celebrity,[3] but no notice is taken of his "Epistle," of which, to the best of my knowledge, no MSS. are known in Europe, and which therefore is only available to us in the extracts inserted by Yâkût in his "Geographical Dictionary." He writes as follows:—

Says Ibn Butlân, in the Epistle he wrote to Abu-l Husain Hilâl ibn al Muhsin as Sâbî, at Baghdad, in the year 440 and odd:—

"We left Halab (Aleppo) intent on journeying to Antâkiyyah (Antioch), and the distance is a day and a night's march; and we found all the country between Halab and Antâkiyyah populous, nowhere ruined abodes of any description. On the contrary, the soil was everywhere sown with wheat and barley, growing under the Olive trees; the villages ran continuous, their gardens full of flowers, and the waters flowing on every hand, so that the traveller makes his journey here in contentment of mind, and peace and quietness."

"Antâkiyyah is an immense city. It possesses a wall and an outer wall (*fasîl*). The wall has 360 towers, and these are patrolled in turn by 4,000 guards, who are sent to Antâkiyyah every year from the presence of the King in Constantinople, as warrant for the safe-keeping of the city, and in the second year they are changed. The plan of the city is that of a semicircle; its diameter lying along the mountain,[4] and the city wall climbs up over the mountain to its very summit; and further the wall completes the semicircle (in the plain below). On the summit of the mountain, but within the wall, is a castle (*Kalʿah*), which appears quite small from the city below on account of its distance up; and this

[1] Mu'jam al Buldân, ed. Wüstenfeld, vol. i, pp. 382–385.

[2] *See* Wüstenfeld: Geschichte der Arab. Aerste, p. 78, No. 133.

[3] Hajji Khalfah, vol. iii. p. 229, No. 5087.

[4] Mount Silphius. For an account of the present condition of these walls see Mr. Greville Chester's paper, p. 67.

mountain shades the city from the sun,[1] which only begins to shine over it about the second hour (of the day). In the wall surrounding (the city), and in the part not on the mountain, are five gates."

"In the centre of the city is the Church of Al Kusyân. It was originally the palace of Kusyân the King, whose son, Futrus (St. Peter), chief of the Disciples, raised to life.[2] It consists of a chapel (*Haikal*), the length of which is 100 paces and the breadth of it 80, and over it is a Church (*Kanîsah*) supported on columns, and all round the Chapel are colonades in which the Judges are seated to give judgment, also those who teach grammar and logic. At one of the gates of this church is a Clepsydra (*Finjân*) showing the hours. It works day and night continuously, twelve hours at a round, and it is one of the wonders of the world."

"In the upper portion (of the city) are five terraces, and on the fifth of these are the baths, and gardens, and beautiful outlooks. You may hear in this spot the murmuring of waters, and the cause thereof is that the waters run down to this place from the mountain which overhangs the city. There are in Antâkiyyah more churches than can be counted; every one of them ornamented with gold and silver and coloured glass, and paved in squares. In the town is a Bîmâristân (or Hospital), where the Patriarch himself tends the sick, and every year he causes the Lepers to enter the bath and washes their hair with his own hands. Likewise the King also does this service every year to the poor. The greatest of the lords and patricians vie in obtaining of him permission after the like fashion to wash and serve these people. In this city there are hot baths, such as you can find the equal nowhere else, in any other town, for luxury and excellence; for they are heated with myrtle wood (*al âs*), and the water flows in torrents and with no scant. In the Church of Al Kusyân are innumerable servants who all receive their daily rations, and there is an office (*dîwân*) for the expenditure and receipts of the Church, in which office are some ten or more accountants."

"Some year and a part ago a thunderbolt struck the Church, and the manner of its doing so was most extraordinary. Now at the close of the year 1362 of Alexander, which coincides with the year 442 of the Hijrah (1050 A.D.), the winter rains had been heavy, and some part of the days of the month Nîsân (April) were already past, when, on the night whose morrow was Saturday, the 13th of Nîsân, there came thunder and

[1] The mountain is to the south of Antioch.

[2] The church here alluded to must, I imagine, be that dedicated to SS. Peter and Paul, and built by the Emperor Justinian, where, in later times (according to the traveller Willebrand, of Oldenburg), the Latin Princes of Antioch were buried. Who is referred to under the name *Kusyân* I have been unable to discover, neither do I know of any mention of St. Peter having raised a king's son to life at Antioch. Perhaps some reader of the *Quarterly Statement* more versed than myself in the Apocryphal gospels may be able to give us light on this point. According to Church tradition, based on Gal. ii, 11 *et seq.*, St. Peter was Bishop of Antioch before going to Rome.

lightning such as had never been known in the present time, nor remembered nor heard of in the past. The claps of thunder were oft repeated, and so terrible as to cause the people to cry out in fear. Then, on a sudden, a thunderbolt fell and struck a Shell[1] which screens the altar (in the Church) of Al Kusyân, and it split from off the face of this Christian (emblem) a piece like what might be struck off by an iron pick-axe with which stone is hewn. The iron cross, too, which was set on the summit of this Shell, was thrown down (by the stroke), and remained on the place where it fell; and a small piece also was cut off from the Shell. And the thunderbolt descended through the crevass in the Shell, and travelled down to the Altar along a massive silver chain, by which is suspended[2] the Censer; now the size of this crevass was of two finger-breadths. A great piece of the chain was broken off, and part of it was melted, and what was melted of it was found dropped down on the surface of the ground below. A silver crown which hung before the table of the Altar was also thrown down. Beyond the table (of the Altar), and to the west of it, stood three wooden stools, square and high, on which were usually set three large crosses of silver, gilt, and studded with precious stones; but the night before they had removed two of the crosses, those on either side, taking them up to the Church Treasury, and leaving only the middle cross in its place. Now the two stools on either side were smashed (by the thunderbolt), and the pieces sent flying over and beyond the Altar—though here there was seen no mark of fire, as had appeared in the case of the chain—but the stool in the middle remained untouched, nor did anything happen to the cross that was set thereon."

"Upon each of the four marble columns which supported the silver dome covering the table of the Altar was cloth of brocade, wrapping round the column. Each one of these suffered a greater or lesser stroke (from the thunderbolt), but the stroke fell in each case on a place (in the cloth) where it had been already worm-eaten and worn to shreds: but there was no appearance as though flame had scorched it, or that it had been burnt. The table (of the Altar) was not touched, nor was any damage done to the (altar) cloths upon it; at least, no sign of it was to be seen. Some of the marble (slabs) which were in front (below) the table of the Altar were struck as though by the blow of a pick-axe, and the mortar

[1] The word in the text is *Sadafah*, which the dictionaries translate "a shell, particularly of a kind found in the Red Sea." What Church vessel or ornament is here intended I cannot tell, but perhaps some who are well acquainted with the details of the Greek rite would be able to throw some light on the matter. *Sadafah* (written without vowels, the first letter being the guttural s, *Sad*) may possibly not be an Arabic word, but merely the transcription of the Greek name of some church ornament. I can, however, find nothing in Du Cange to answer to *Sadfah*, *Sudfah*, or *Sidfah*, &c.

[2] The word given in the text is *al Thumiyatún*, evidently not an Arabic word. In Du Cange (Gloss. Mediæ et Infimæ Græcitatis. Ludg. Bat. MDCLXXXVIII, p. 502). I find "Θυμιατὸν, Thuribulum (a censer), Acerra (a casket for incense)," which I take to be the object intended.

and lime setting thereof (was cracked). Among the rest was a large slab of marble, which was torn from its bed and fractured, and thrown up on to the square top of the silver dome covering the table of the Altar, and here it rested, the remaining pieces of the marble being torn from their bed and scattered far and near. In the neighbourhood of the Altar was a wooden pulley, in which was a hemp rope—quite close to the silver chain which had been broken, and part of it melted—and (to this rope was) attached a large silver tray, on which stood the bowls[1] of the glass lamps. This tray remained untouched, none of the lamps were overturned, nor aught else ; neither did any damage happen to a candle that stood near the two wooden stools (formerly mentioned). The greater part of these wonderous occurrences were witnessed by many who were in Antâkiyyah."

"Outside the city, on the night of Monday, the 5th of the month Âb (August), of the year before mentioned, there was seen in the heavens the likeness of a window, through which light shone out broad and glittering, and then became extinguished. The people waited till morning, expecting some event therefrom. And after a time news came that in the early part of the day of that Monday, at the City of Ghunjurah,[2] which lies in the Greek country, and is nine days' journey from Antâkiyyah, terrible earthquakes had taken place, following one another continually. The greater number of the houses (of this city) had been thrown down, and a piece of ground outside the town had been swallowed up, while a large church and a fine fortress which had stood there had both disappeared, so that no trace remained of either. From the crevass extremely hot water had been thrown up, flowing forth from many springs. It had drowned 70 farmsteads ; and the people fleeing therefrom had escaped for safety to the hill tops, and high places around. The water covered the surface of the ground during seven days, spreading round about the city for the distance of two days' journey. After that time it disappeared, and the place where it had been became a swamp. A number of those who were witnesses of these events testified thereto, and the people of Antâkiyyah reported to me all that I have here set

[1] In the text the word is *firâkh*, which means literally "chickens" of the glass lamps. The word, however, has other meanings, as *arch-way*, *folio of paper*, &c., and must, I imagine, be taken here in the sense of a *bowl* or other vessel, in which the wick of the lamp was set.

[2] Gunjurah is, I conclude, the town of Gangra, the capital of Paphlagonia, and the Metropolitan See of the province. Yakût does not mention Gunjurah elsewhere. The geographer Kaswînî (Wüstenfeld's ed. of the text, vol. ii, 368) says that Gunjurah is a city in the Greek Territory and stands on the river called *al Maklub* (the overturned river)—a name also given to the Orontes, as stated below, because it flows from south to north, contrary to the habit of other rivers. This river al Maklûb must be the name of one of the affluents of the Halys, which flows north into the Euxine, on which the town of Gangra is built. Kaswînî then proceeds to give the story of the great earthquake and innundation in much the same words as those found in our text.

down. They related further, that when the inhabitants had carried up their goods to the hill tops, the ground rocked so by the mighty earthquake that their chattels came rolling down again to the level earth below."

"Outside the city (of Antâkiyyah) is a river called Al Maklûb[1] (meaning the Overturned, because) it takes its course from south to north. It is of the size of the Nahr 'Isâ (in Babylonia). There are, along its bank, mills, and it waters the gardens and grounds (of the city)."

(Saith Yâkût), so ends what we have transcribed from the work of Ibn Butlân.

GUY LE STRANGE.

THE MUSLIM LEGEND OF THE CAVE OF THE SLEEPERS.

THE story of the Companions of the Cave is one that from earliest times has proved a favourite with the Muslims. This probably was in the beginning due to the fact that the Prophet had set the incidents connected with the legend of the Seven Sleepers of Ephesus to illustrate one of the didactic chapters of the Koran. The Christian legend will be found related at length in the *Acta Sanctorum* of the Bollandists, under date of July 27th. (Tomus vi, p. 375. *de SS. Septem Dormientibus.*)

Briefly the account given is that in the year 250 A.D., during the reign of the Emperor Decius, there lived at Ephesus seven young men, brothers, and ardent Evangelists, whose names, as given in the Roman martyrology, were: Maximilianus, Marcus, Martinianus, Dionysius, John Serapion and Constantinus. In order to escape the persecution then being directed against the Christians, they hid themselves in a cave in Mount Cælian. On being discovered by their persecutors they were walled up in the Cave, and there took sleep in the Lord. In the year 470, under the Emperor Theodosius, their bodies were discovered and ultimately were brought to the Church of St. Victor, in Marseilles, where they now lie.

The legend was apparently of Syrian origin. It has given its name to the 18th chapter of the Kuran, of which the following verses are the most important:—

Verse 8.[2]—Hast thou reflected that the Inmates of the Cave and of Ar Rakîm were one of our wondrous signs?

Verse 9.—When the youths betook them to the Cave they said "O, our Lord! grant us mercy from before Thee, and order for us our affair aright."

Verse 10.—Then struck we upon their ears (with deafness) in the Cave for many a year.

[1] The Orontes.

[2] Quoted from Rev. J. M. Rodwell's translation.

Verse 16.—And thou mightest have seen the sun when it rose pass on the right of their Cave, and when it set leave them on the left, while they were in its spacious chamber.

Verse 17.—And thou wouldest have deemed them awake though they were sleeping; and we turned them to the right and to the left. And in the entry lay their dog with paws outstretched. Had'st thou come suddenly upon them thou wouldst surely have turned thy back on them in flight, and have been filled with fear at them.

Verse 18.—Then we waked them that they might question one another. Said one of them, "How long have ye tarried here?" They said, "Your Lord knowest best how long ye have tarried; send now one of you with this your coin into the city, and let him mark who therein hath purest food, and from him let him bring you a supply; and let him be courteous and not discover you to any one.

Verse 19.—For they if they find you out will stone you, or turn you back to their faith, and in that case it will fare ill with you for ever."

Verse 20.—And thus we made their adventure known to (their fellow-citizens), that they might learn that the promise of God is true.

Verse 21.—Some say they were three, their dog the fourth; others say five, their dog the sixth guessing at the secret, others say seven, their dog the eighth.

Verse 24.—And they tarried in their cave three hundred years and nine years over.[1]

During the course of the last twelve months, while getting together the materials for a book which, it is hoped, will contain all the important notices of Palestine and Syria that occur in the works of the mediæval Arab geographers, I have had occasion to devote much of my attention to the pages of Yâkût's great "Geographical Encyclopædia." Of Yâkût, his life, and his works, I have given some short account in a recent paper in this journal.[2] The prodigious extent of Yâkût's labours, however—for the book gives a detailed account of all the countries and towns in Muslim lands (as matters stood in the 13th century) from Spain in the west to beyond Transoxiana and India in the east—is but little known beyond the narrow circle of Semitic scholars, for the work has never been translated. Some idea of the mass of information, both geographical and historical, therein contained may perhaps be gathered from the statement that the Arabic text, as printed at the cost of the German Oriental Society, covers close on *four thousand* pages, large 8vo.; an English translation, with the needful notes, would therefore occupy from double to treble that space.

[1] They entered the cave under Decius, and awoke in the time of Theodosius, according to the Christian tradition, *i.e.*, about 220 years, which does not agree with the 309 years of the Kurân. See Gibbon, "Decline and Fall," at the end of chapter xxxiii.

[2] *Quarterly Statement* for January, 1888.

Scattered up and down the volumes of Yâkût, under various headings, are many curious details relating to the legend of the Seven Sleepers, and these I have now brought together for purposes of comparison with accounts derived from other early Muslim writers.

Starting with the verses of Kurân, before quoted, where "The Cave and Ar Rakîm" are mentioned, the Muslims were much exercised in their minds as to what signification should be attached to the word *Ar Rakîm*. According to one account ("Yâkût," ii, p. 805), Ar Rakîm was said to be "a tablet of lead on which were inscribed the names of the men of the Cave, and their history and the date of their flight." The authority of the great traditionist Ibn 'Abbas, is, on the same page, given in support of the view that Ar Rakîm was the name of the Cave, which, it is further stated, "lay between 'Ammuriyah (Amorium) and Nikiyah (Nicæa), being ten or eleven days' journey from Tarsus." Other authorities, however (says Yâkût), hold Ar Rakîm to be either the name of the village where the youths lived, or of the mountain in which the cave was to be found. Or, says Yâkût, at another place (ii, 175), "Jairam, is said to be the name of the Cave of the Sleepers."

The same 'Ibn Abbas ("Yâkût," ii, 805) further states that the names of the Seven Sleepers were these :—Yamlîkhâ (Jamblichus), Maksimilînâ (Maximilianus), Mashilînâ (Marcellus?), Martûnûs (Martianus), Dabriyûs (Dionysius? or Demetrius?), Sirabiyûn (Serapion), and Afastatiyûs (Exustadianus?). The name of their dog being Kitmir, and of the king from whom they fled Dakyânûs (Decianus, a mistake for Decius). The name of their city is given, very correctly ("Yâkût," ii, 806), as Afasûs (Ephesus); Ar Rakîm being here the name of the cave, and Ar Rass the name of the village where the youths dwelt. In a previous article, however ("Yâkût," i, 91), we find another spelling :—"Abasûs, a ruined city of the country of the Greeks, from which the Companions of the Cave came. It is said to be the City of Dakiyânûs, and it lies near Abulustain." Two pages further on (*op. cit.*, i, p. 93) Abulustain is given as "a celebrated city in the Greek country, near to which is Ar Rakîm." Abulustain, near Ephesus, is the place at the present day called Al Bustân. In the last volume of "Yâkût" (vol. iv, p. 1040), "Yanjalûs" (evidently a Greek name) is stated to be the name of the mountain in which lay the Cave of the Sleepers, but some doubt is expressed as to where the mountain was situated.

Besides the neighbourhood of Ephesus, Yâkût localises the legend in two other places, namely, in the trans-Jordanic province of the Balkâ, and in Spain. In the latter country, says "Yâkût" (vol. ii, p. 125, and also p. 806), "some say the Cave and Ar Rakîm are to be found at *Jinân al Ward* (the Gardens of the Rose), in Andalusia, and that Tulaitalah (Toledo) is the City of Dakiyânûs —but God knows best." Of Ar Rakîm, in the Balkâ, a curious story relating to a cave will be found given in "Mukaddasi" (p. 56 of my translation, Pal. Pil. Text Soc.), which, however, is not of sufficient importance to be quoted over again in this place.

Dating from the early days of Islam, we have two separate and very

circumstantial accounts of visits to certain caves in Asia Minor, said in each case to have been the particular Cave of the Sleepers. They are both quoted by Yâkût. One dates from the days of Abu Bakr, the successor of Muhammad; the other visit is related as having taken place about two centuries later under the Abbaside Khalif of Baghdad, Al Wâthik, grandson of Harun ar Rashid.

Of the first account the following is a translation :—

("Yâkût," vol. ii, pp. 806, 807.)

Ubâdah ibn as Sâmit relates as follows :—"Abu Bakr as Siddîk despatched me, the year he became Khalif (A.H. 11, A.D. 632) to the King of Rûm to exhort him to receive Islâm, or else to declare him war."

'Ubâdah continues :—"We journeyed until we entered the country of the Greeks, and when we were approaching Constantinople, there appeared before us a red mountain in which they said were the Companions of the Cave, and Ar Rakîm. So we turned aside to a monastery and enquired of the people thereof concerning them; and they pointed out a passage in the mountain. Then we told them that we wished to see the (Companions of the Cave). They said 'give us somewhat,' and we gave them Dînârs. Then they entered the passage, and we entered after them, and there was herein a door of iron which they opened, and they brought us to a mighty chamber (*bait*), hollowed in the mountain in which were thirteen men, lying on their backs, as though they were asleep. They all were covered from head to foot with dust-grey cloaks and shirts. We could not discover whether their clothes were of wool or of hair, or of what other material, but the texture was harder than brocade, and crackled from their thickness and the excellence of the stuff. We saw that most of them had on boots (*khufâf*), reaching up to the middle of the leg, but some were shod with sandals (*ni'âl*) sewn together. Both the boots and the sandals were of excellent sewing, and the leather was such as the like I have not seen elsewhere. We uncovered their faces, one after the other, and lo! in all was the complexion of healthful bloom, and of red blood (in the cheeks) as is the appearance of a living man. Of some (the hair) was turning grey, and some were in their youth with black hair, some had flowing locks and some were shaven. Their stature was that of ordinary Muslims. When we came to the last of them we beheld that his head had been cut off with a sword-stroke, and it was as though it had been struck off that very day. We enquired of those who had conducted us hither, what they did with these men. They replied, it was their wont to come in here on the festival day of (the Companions of the Cave), when the people of all the country would assemble at the gate of the cave, coming in from all the towns and villages around; and that then, during some days, they would stand the dead men upright in order to clean them, and shake the dust from their cloaks and shirts, also they pared their nails, and cut their moustaches; and after this they laid them down once more in the position in which we now saw them.

"Then we enquired of our guides as to who these men had been, and

what had been their office, and how long they had lain in this place. The guides answered us they had found in their books that these men had lain in this place since 400 years before the Coming of the Messiah—peace be upon Him—and that they had been Prophets, sent at a certain time, and that they knew naught more of their condition but this."

Says 'Abd Allah (Yâkût), the poor servant (of God) :—"All this have I copied from the work of a man of trust, but Allah alone knows if it be true."

A similar account to the one just quoted (of 'Ubâdah's visit) is given in almost identical terms by Mukaddasi (*see* p. 6 of my translation, published in the "Palestine Pilgrims Texts"), with, however, the following variants :—Mukaddasi, writing in A.H. 375, A.D. 985, states that his account is from a certain *Mujâhid ibn Yazîd*, who accompanied Khâlid al Barîdî to Constantinople, in A.H. 102, A.D. 720, that is about ninety years later than the above-mentioned expedition by 'Ubâdah. The details of what was seen are, however, in the main identical with the first account —as regards the appearance of the men, their clothes, the nail-paring, &c., and the feast-day when the country people came to visit them. The cave, on the other hand, is stated to have been situated in the mountains at Al Hawiyyah, not far from Laodicea Combusta, between Armorium and Iconium, and the guardians further gave the following account of "the Prophet" whose head had been cut off.

(Translation of Mukaddasi, p. 7).

They answered, saying, "When the Arabs came down on us and took possession of Al Hawiyyah, we gave them this information concerning these dead men, but they would not believe us, and one of the Arabs struck the head off this body."

With these two accounts of visits in A.H. 11, and in A.H. 102, may be compared the account of the Astrologer Musa, whose visit took place more than a century later than that of Mujâhid.

("Yâkût," vol. ii, pp. 805, 806).

It was (the Khalif) Al Wâthik (A.H. 227–232, A.D. 842–847), who sent Muhammad Ibn Mûsâ al Munajjim (the Astrologer) to the countries of the Greeks to discover the Companions of the Cave and Ar Rakîm. This (Muhammad, the Astrologer) reports (of his journey as follows) :—"And we reached the country of the Greeks, and lo ! before us was a small mountain, the base of which was not more than a thousand ells (round). In its side is a passage, and you enter by this passage and pass through a tunnel in the ground for the distance of three hundred paces, when you arrive at a portico (*Riwâk*). This is in the mountain ; it is supported by columns cut out (of the rock. In the rock) are numerous chambers (*bait*), and among them one with a tall door-way, of man's height, closed by a stone gate. It is here the dead men lie. There was one in attendance who guarded them, and with him were eunuchs. The guardian would have turned us aside from seeking to see the dead men, for he said, that of a surety he who went down to seek them would

receive some bodily injury. But by this dissimulation he sought to keep the advantage thereof to himself (and his people)."

"Then said I to him, 'Give me but a sight of them, and thou shalt be free (of all blame in the matter).' So I ascended, with great pain, a rough way, accompanied by one of my young men, and I beheld these (dead men). And lo! (their bodies) had been rubbed with unguents, the hair being soft to the hand, and their limbs anointed with aloes and myrrh, and camphor to preserve them. Their skin clave to the bones, for I passed my hand over the breast of one of them, and I found the hair thereof rough. The garments were strong (of texture)."

"After that (we had returned) the guardian presented us with food, and besought us to eat; but when we took thereof and tasted it, our stomachs revolted from it, and vomited it up again. It was as though a vilany had been attempted and that (the guardian) had sought to kill us, or certain of us at least, in order to justify the words of dissimulation used in the presence of the king, when saying that the companions of Ar Rakîm would surely work us evil. Then said we to the (guardian), 'We had imagined they would have been living men, but with the semblance of those who are dead; but behold these (men) are not of this sort!' And we left him and went our ways."

Speaking of this and other accounts of the Cave of the Seven Sleepers, Al Birûnî (who wrote in A.H. 390, A.D. 1000) has some pertinent remarks. I quote from Prof. Sachau's excellent translation of the text,[1] where, in the chapter on the Festivals of the Syrian calendar, under the date of the "5th of Tishrin I." (October), we find the following:—

"Commemoration of the Seven Sleepers of Ephesus, who are mentioned in the Coran. The Khalif Al Mu'tasim had sent along with his ambassador another person who saw the place of the Seven Sleepers with his own eyes and touched them with his own hands. This report is known to everybody. We must, however, observe that he who touched them, *i.e.*, Muhammad ibn Mûsâ ibn Shâkir, himself makes the reader rather doubt whether they are really the corpses of those seven youths or other people—in fact, some sort of deception. 'Ali ibn Yahyâ, the Astronomer, relates that on returning from his expeditien he entered that identical place, a small mountain, the diameter of which at the bottom is a little less than 1,000 yards. At the outside you see a subterranean channel, which goes into the interior of the mountain, and passes through a deep cave in the earth for a distance of 300 paces. Then the channel runs out into a sort of half-open hall in the mountain, the roof being supported by perforated columns; and in this hall there is a number of separate compartments. There, he says, he saw thirteen people, among them a beardless youth, dressed in woollen coats and other woollen garments, in boots and shoes. He touched some hairs on the forehead of one of them and tried to flatten them, but they did not yield. That their number is more than seven—which is the Muhammadan—and

[1] Sachau's translation of Al Birûni's Athâr ul Bâkiya, 1879, p. 285.

more than eight—which is the Christian tradition—is perhaps to be explained in this way, that some monks have been added who died there in the same spot. . . . ."

A few words may be added in conclusion regarding the names of the Seven Sleepers, as given in the authorities quoted in the "Acta Sanctorum" of the Bollandists (Julii, Tomus VI, p. 375, *et seq.*), and in the "Bibliotheca Orientalia" of Assemani (Vol. I, p. 335, *et seq.*).

The legend of the Seven Sleepers is first referred to in Western literature by Gregory of Tours ("De Gloria Martyrum," Vol. I, 9, caput 95), according to whom they were seven in number, their names being Clemens, Primus, Lætus, Theodorus, Gaudens, Quiriacus (or Cyriacus) and Innocentius. In the official list of the Roman "Acta Sanctorum" the names appear in Latin, as :—Maximianus, Constantinus, Malchus, Serapion, Martinianus, Dionysius, Johannes; in Greek the first two figure as Maximilianus and Constantinianus respectively, while Exacustodianus replaces Malchus, and Jamblichus, Serapion.

In Assemani ("Bibl. Or.," Tom. I, p. 336) we find a list taken from the writings of Dionysius, the Jacobite patriarch, who gives the number as *eight*, their names being: Maximilianus, Jamblichus, Serapion, Martinianus, Johannes, Exustadianus, Dionysius, and Antoninus.

The following are the names, *seven* in number, from other Martyrologies, as given in the "Acta Sanctorum" (*loc. cit.*, p. 376) :—

Russian.—Maximilianus, Dionysius, Amulichus, Martinus, Antoninus, Johannes, Marcellus.

Ethiopian (as given by Jobus Ludolfus, "Calendarium Æthiopicum," p. 436) :—Arshaledes, Diomedes, Eugenius, Dimatheus, Bronatheus, Stephus, Cyriacus.

The list given by the Arab traditionist, Ibn 'Abbas (cited above, p. 273), is doubtless somewhat corrupt. In "Eutychius" (edited by Pocock, Vol. 1, p. 390 of the text) the names appear as : Maksimyânûs, Amlîkhus, Diyânûs, Martîmûs, Diyûnîsiyûs, Antûniyûs, Yuhannâ.

This variety in the names would appear to have struck the Martyrologists as requiring some sort of explanation. In the "Acta Sanctorum" (*loc. cit.*, p. 376) the opinion of an anonymous Greek author of a MS. in the Medicean Library is quoted, as also that of Boninus Membritius. These are both of the opinion that the variants were due to the fact that the individuals are cited in one account under their original Pagan names, in another under the names they received in baptism. Thus, according to the anonymous Greek author :—

Μαξίμιλιανὸς	was baptised	Ἀχιλλιος.
Δεμετριος	,,	Ἰαμβλιχος.
Ἐξακουστουδιανος	,,	Λιομηδης.
Ἀντονινος	,,	Κυριακος.
Μαρτινος	,,	Ἐυγενιος.
Διονυσιος	,,	Στεφανος.

Boninus Membritius, however, has the list as follows :—

Achiledus	was baptised	Maximus.
Diomedus	„	Malchus.
Eugenius	„	Martinianus.
Stephanus	„	Constantius.
Probatius	„	Dionysius.
Sambatus	„	Johannes.
Cyriacus	„	Serapion.

The story of the Sleepers, though probably at first merely a local legend of Syrian origin, has been carried far and wide, over the West and the East. One version is found in Scandinavia, and the account localised in Muslim Spain has already been alluded to. Finally, are not the numerous popular beliefs, according to which Arthur, Barbarossa, Roderic the Goth, and, at a later period, Don Sebastian of Portugal (not to mention various other renowned monarchs), are now asleep in caverns, but will awake and return to reign in the fulness of time—are not all these but variations of the old legend of which the Cave of the Sleepers of Ephesus is the first Christian example?

GUY LE STRANGE.

AN INSCRIPTION IN THE AKSÂ MOSQUE.

IN my translation of Nâsir-i-Khusrau's account of Jerusalem and Palestine, recently published by the Palestine Pilgrim's Text Society, there is a mistake in a note which I should wish to correct. The first note on p. 37 of the translation reads as follows :—

"In 425 A.H. (1033) the dome of the Aksâ Mosque had been seriously damaged by a shock of earthquake. It was restored next year by order of the Fatimite Khalif of Egypt, Ad Dhâhir, the work, *according to the extant inscription in the dome*, having been terminated in the month Dhû l Kaâdah, 426 A.H. (September, 1035), that is less than eleven years prior to our Pilgrim's visit."

The words printed in *italics* should be altered as follows :—

"*According to the inscription quoted* (A.D. 1173) *by Ali of Herat, and probably still extant*," &c.

The mistake arose from my having confounded an inscription mentioned by M. de Vogüé as still existing in the Dome of the Rock, with the one mentioned by Ali of Herat as read by him in the Dome of the Aksâ Mosque.

The earthquake of the year 407 A.H. (1016 A.D.) had greatly damaged the framework of the Dome of the Rock, and this was restored by order of the Fatimite Khalif Ad Dhâhir, as shown in the inscription, in ancient Karmatic characters, still to be seen on the framework in that dome,

which M. de Vogüé has reproduced in his work "Le Temple de Jérusalem," at p. 93. Of this inscription the following is a translation :—

"In the name of Allah the Compassionate, the Merciful. Verily he who believeth in Allah, restoreth the Mosques of Allah. Hath commanded the restoration of this Blessed Dome, the Imâm Abu-l-Hasan 'Ali ad Dhâhir li Izâz ad Dîn Allah, the son of Al Hâkim bi Amr Illah, Commander of the Faithful, the benediction of Allah be upon him, and on his most pure and generous forefathers. This was executed at the hand of his servant the Amir, the supporter of the Imâms, the sustainer of the State, Ali ibn Ahmad Inâbat Allah, in the year 413 (A.D. 1022). May Allah perpetuate the glory and the stability of our Master the Commander of the Faithful ; giving him kingship over the East and the West of the earth : for Him we praise at the beginning and the ending of all actions ! "

Further, inside the Dome of the Rock, on the tile-work, can still be read an inscription, which is unfortunately much mutilated, but of which the last few words are plainly legible. (*Cf.* de Vogüé, op. cit., Plate XXIII.) The last words may be translated, ". . . in the year four hundred and eighteen." A.H. 418 = A.D. 1027, which shows that these tiles were put up to replace those damaged probably by the same earthquake.

A third inscription of the same period, relating to the Khalif ad Dhâhir's restoration, is also given by M. de Vogüé (op. cit., p. 77). He states it may still be clearly read, though in a rather dilapidated condition, on two of the battlements of the outer wall of the Haram Area, near the *Cradle of Jesus*, at the S.E. angle. The remains of this inscription, translated, read as follows :—

". . . the days of the Imâm ad Dhâhir li Izâz ad Dîn Allah, the Commander of the Faithful . . . (words illegible) . . . the southern outer wall and the . . . (eastern ?) outer wall . . . year four hundred and twenty-five."

The year 425 (A.D. 1033) was the year of the earthquake, when the dome of the Aksâ Mosque was damaged.

I now come to the inscription in the Dome of the Aksâ Mosque, seen by Ali of Herat, of which M. de Vogüé makes no mention, but which may very probably still be discovered should search be made. Perhaps Mr. C. Schick, or some other gentleman at present resident in Jerusalem, would take the trouble to look for it.

In the Bodleian Library is an excellent little manuscript of Ali of Herat's description of the Holy Places, which he visited in A.D. 1173. The MS. is numbered 17 E. D. Clarkii, Uri, CLV. From folio 36 verso, I translate the following :—

"*The Aksâ Mosque.*—In this mosque is the Mihrâb of Omar ; the Franks have not done it any damage.

"On the roof I read the following inscription :—

"'In the name of Allah the Compassionate, the Merciful. Praise to Him who brought His servant (Muhammad) by night from the Masjid

al Harâm (at Mekkah) to the Masjid al Aksâ (at Jerusalem), on the precincts of which we invoke a blessing. May Allah give aid to His servant and vicar Ali ibn Abu-l Hasan ad Dhâhir li Izâzi dîn Allah, the Commander of the Faithful—Allah's benediction be upon him and upon his immaculate forefathers, and upon his beneficent sons! For the restoration of this same Dome and its gilding hath given command our illustrious and dear lord, the chosen servant of the Commander of the Faithful and his devoted servant. Abu-l Kâsim Ali ibn Ahmad—Allah give him aid and protection! The whole of this (building) was accomplished by the last day of the month Dhû-l Kaádah, of the year 426: he who (superintended) the building of the same being 'Abd Allah ibn al Hasan of Cairo the architect.'

"The inscription, as well as the porticoes, are all done over with mosaics of gold, and these the Franks have not touched or in any way damaged."

With a view of the possible recovery of this interesting inscription, I add a copy of the Arabic text as given by Ali of Herat in the MS. of the Bodleian. I should add that M. C. Schefer, in his extracts from Ali of Herat's work given in the Journal of the "Société de l'Orient Latin," tome i, p. 587, has printed a slightly different version of this same inscription taken from a MS. of Ali of Herat, in his own collection:—

[Bodley MS. Uri, CLV., folio 37 recto.]

بسم الله الرحمن الرحيم سبحان الذى اسرى بعبده ليلا من
المسجد الحرام الى المسجد الاقصى الذى باركنا حوله نصر
من الله لعبد الله و وليه على بن ابى الحسن الامام الظاهر لاعزاز
دين الله امير المومنين صلوات الله عليه و على اباءه الطاهرين
و ابناءه الاكرمين امر بعملها و هى هذه القبة واذهابها سيدنا
العزيز الاجل صفى امير المومنين و خالصه ابو القاسم على بن
أحمد ايده الله و نصره وكمل جميع ذلك الى سلخ ذى
القعده سنة ست و عشرين واربع مايه صنعه عبد الله بن الحسن
المصرى المزوق

GUY LE STRANGE.

KIRJATH-SEPHER.

SURELY we ought not to let this place go unexplored, after the suggestion made by Professor Sayce in the August number of the "Contemporary Review." The recent discovery of cuneiform tablets at Tel el-Amarni, in Egypt—consisting of despatches to Amenophis IV and his predecessor (18th dynasty), from their agents in Palestine—proves that there was active literary intercourse from one end of the civilised East to the other, in the century before the Exodus, and that the medium of literary correspondence was the Babylonian language and script. There were libraries in Canaan in those days, and some of the books were in cuneiform characters. They were of clay, which would not perish like papyrus, and they could be read if they were discovered. Professor Sayce would be hopeful of finding such records at Tyre and at Kirjath-Sepher.

Kirjath-Sepher is translated as Book-town. In the Euphrates valley there was a city of corresponding name—Sippara—and it has justified its designation by yielding (within the present decade) many ancient records.

Sippara was a seat of sun-worship, and its temple contained hundreds of apartments. The legend said that Khasis-adra, the Chaldean Noah, here buried the records of the ante-diluvian world; and at any rate a great library was founded here as early as the remote days of Sargon I, of Assyria (B.C. 3750).

Some people from Sippara were transported to Samaria when the ten tribes were carried away captive, and the city is mentioned in the Bible under the name of Sepharvaim. This is a Hebrew dual form, signifying the "two Sipparas," and, accordingly, the ruins are found on both sides of the stream—at Abu Hubba and at Agadé. I find reason to think that the duality was symbolical, and was important in the astro-religious system, the two sites standing for the two equinoxes. We may compare with these twin temples, or towers, the mound of *Birs Nimroud* and the *Babil* mound on the opposite side of the stream; we may compare again the two "brother" peaks of Delphi, of the like significance, perhaps, in the Greek mythos, which was, at bottom, the same as the Chaldean.

The temple at Sippara was called Beth-el (House of God)—House of the *Sun*-god, apparently, since the expression "Shamash of Sepharvaim" occurs in the cuneiform texts.[1] We might have expected to find Nebo rather—the god of writing—especially as the temple at Borsippa was sacred to him. The first and principal records preserved in the temple would be astronomical records—called "tablets of destiny," because the fixed laws of the heavens governed the fate of men—such records being of prime importance in an astro-religious system. Accordingly, we find

[1] In 2 Kings, xvii, the men of Sepharvaim made images of Ana-melech and Adra-melech, and burnt their children in the fire.

that the treasures of the library of Sargon included a great work on astronomy and astrology in seventy-two books (72, it may be remarked, is an oft-recurring number in mythic writings, because $5 \times 72 = 360$, the number of degrees in the circle of the heavens, and of days in the ancient year). The priestly guardians of these writings, however, being the scribes of the people, would bye-and-bye be entrusted with the care of the contracts, &c., which they drew up; and so Mr. Rassam discovered, at this site, thousands of tablets relating to fiscal, legal, and commercial transactions.

These, then, are the kinds of records which we may hope to find at Kirjath-Sepher in Judea. The place was very likely the site of a temple of Nebo, or some equivalent god of writing, and the records preserved would be, first of all, astro-religious, and then commercial.

Kirjath-Sepher is otherwise called Kirjath-Sannah, and also Debir. It was one of the Canaanitish towns taken by Joshua, and the worship would relate to that early time; the tablets would belong to the pre-Israelitish inhabitants. In "Fresh Light from the Monuments," Professor Sayce gives the name *Debir* as meaning sanctuary, and compares it with Kadesh, "the holy city." In the "Survey Memoirs" (iii, 402) we are told that "the name has the meaning 'back,' due to its position on the ridge." I have always supposed that the later name, Debir, had the same meaning as the earlier name, Sepher. Dabar, from the same root, signifies a word, speech, saying, command, law, oracle, &c.; and Furst, under the word Debir, allows that it may mean Book-town, the same as Kirjath-Sepher. It comes from *Dabar* (דָּבַר) to speak. Apparently, the root-meaning of Sepher and Sanneh is connected with the idea of piercing and being pointed, like thorns or like crags, and may have had reference to the conical hills on which Nebo temples are built, or to the stylus used in writing. The west or hinder part of the temple was called Debir, and in that connection the word is said to mean hinder; but if the sacred books were kept on that side, the name may perhaps have reference to the writings.

Kirjath-Sepher is represented now by the village of *edh Dhâberîyeh*, south-west of Hebron (*see* Memoirs iii, 402, and Armstrong's "Names and Places." O. T.). The description of it is not unpromising for the investigator—"ancient materials," "an old tower," "a sacred place," and "houses over caves."

George St. Clair.

MEETING OF THE GENERAL COMMITTEE.

The Annual Meeting of the General Committee was held at the offices of the Fund, 1, Adam Street, Adelphi, on July 3rd. Chairman, Mr. James Glaisher.

After the Honorary Secretary had read letters from various gentlemen

regretting their inability to attend the meeting, the Report of the Executive Committee for the year was read as follows :—

My Lords and Gentlemen,—

Your Committee elected at the last General Meeting, on June 14th, 1887, have, on resigning their office into your hands, to render an account of their administration during the past year.

1. The Committee have held twenty-two meetings during the year.
2. The work of exploration has been carried on during the last year by Herr Schick at Jerusalem, and by Herr Schumacher in other parts of the country.

We had on this occasion of last year to announce the deeply interesting discoveries made at Saida of sarcophagi and rock-cut tombs. We have been enabled to publish a more detailed account of these monuments, partly from Professor Hayter Lewis, who was allowed to see them at Constantinople, partly from the "Revue Archéologique," and partly from a journal published in Arabic at Beyrout. Hamdi Bey himself has not yet published any photographs or further details, which it is hoped may shortly be produced.

Several very valuable discoveries have been made in Jerusalem during the year :

(1) The ancient wall at the Jaffa Gate has been proved to be built inside the modern wall, which has no foundations, and stands upon the earth.

(2) One or two small points have been discovered as to the second wall, but its course has not been yet determined. Herr Schick will lose no opportunity of investigating this most important point.

(3) Herr Schick has discovered a Byzantine pavement, which in the opinion of most can be no other than the open space paved and adorned by Constantine in front of his group of Churches. It is of less importance, but it is still interesting to ascertain that on this pavement stood the "Vaulted Street," long lost, described in Crusading accounts.

(4) The most important discovery, however, is that of the Pool of Bethesda :

An apparently uninterrupted chain of evidence from the year A.D. 333 to the year 1180 speaks of the Probatica Piscina as near the Church of St. Anne. The place spoken of, recently believed to have been only a mediæval and traditional site, is said by the earliest writers to have formerly had five porches, then in ruins. Nothing was known of the Pool described by those writers until quite recently, when certain works carried on by the Algerian monks laid bare a large tank, or cistern, cut in the rock to a depth of 30 ft. It lies under, but not immediately under, a later building, a church with an apse at the east end. The cistern is 55 feet long from east to west ; north and south it measures $12\frac{1}{2}$ feet in breadth. A flight of 24 steps leads down into the pool from the eastern scarp of rock.

Now, the first requisite for the site of the pool of Bethesda is that it

should be possible to have five porches. The only way (as shown by Sir Charles Wilson in his notes to the new edition of the "Bordeaux Pilgrim") in which this requisite could be satisfied is that the pool should be what is called a twin pool, such as that discovered close to the Convent of the Sisters of Sion—that is to say, two pools lying side by side, having one portico on each side of the four sides thus formed, and one between them on the wall of separation.

The discovery of the pool at the church of St. Anne did not at first admit of this possibility. It seemed, therefore, to be of interest chiefly as the re-discovery of a mediæval site. But Herr Schick now reports that he has found a continuation of the pool, or, rather, a sister pool, lying end to end, 64 feet long, and of the same breadth as the first.

We are, therefore, able to make out a reasonably strong case for identifying the newly-discovered twin pool with the Pool of Bethesda.

(1) It is undoubtedly the pool pointed out by all the writers, from the 4th to the 12th centuries inclusive, as the Piscina Probatica, around which other traditions gathered; as that it was the birthplace of the Virgin Mary.

(2) The five porticoes spoken of by the "Bordeaux Pilgrim" as being then in ruins, could very well have stood here.

In other words, the historical evidence in favour of this site is as strong as that which connects the Holy Sepulchre with the site adopted by Constantine.

In the minds of most, therefore, it will be probably acknowledged that we have here none other than the ancient Pool of Bethesda.

Herr Schumacher continues to send us valuable notes and papers. He reports antiquities and ruins uncovered in progress of excavation at many points at Zimmârîn (now called Zicron-Jacob), at Tiberias, at 'Akka, at Rushmia, at Lejjûn, and elsewhere, all tending to prove that the antiquarian wealth of Palestine is below the surface not above it.

We received, in the autumn of last year, from Mr. Flinders Petrie, a loan collection of ethnological casts, representing the races of Syria and other countries, prepared from the sculptures at Thebes. These casts were shown at the Society's exhibition at the South Kensington Museum. A small grant having been made by the British Association towards the expenses of the work, the casts were taken last winter at Thebes by paper moulds; the series was prepared from the moulds in England; and photographs of all the casts were taken. The greater number of the casts represented the Syrian races, with whom the Egyptian monarchs were constantly at war. The characteristic faces of the Hittites, the Amorites, the Arabs, the Judeans, and the inhabitants of many towns of the North of Syria, could here be studied from contemporary portraits; and, moreover, from such a number of examples, that the general type could be seized without the uncertainty of errors of the sculptor. One most prominent result in Palestine was the resemblance of the Judeans to the Amorites (agreeing with the kings of Jerusalem and Hebron being kings of the Amorites, and Ezekiel declaring to Jerusalem

"thy father was an Amorite"), the faces of the former being of exactly the same type of that of the latter, only rather more refined and subtile of expression. Besides these there were sculptures of many other races; the Southern Arabians, who seem to have originated the Egyptian stock; the Libyans, the fair tribes of North Africa, of Aryan type; the Greeks, Sardinians, Philistines, and allied peoples; and some negro races. A mass of trustworthy material was here brought to hand in the most convenient form, for study by the historian and ethnologist. The collection remained on exhibition at South Kensington until the end of the year.

We have translated and presented to subscribers, during the year, Herr Schumacher's "Jaulân," an account of his survey and its results. This we have so printed as to be detached from the *Quarterly Statement*, and bound in a volume similar to Captain Conder's "Tent Work."

We have also, ready to be issued, Herr Schumacher's "Pella," an account of a survey and description of that city and its surroundings. This is also illustrated in the same style, and it will be forwarded to every subscriber who signifies his wish to have it.

We have to thank Mr. Greville Chester for his "Journey from Iskanderûn to Tripoli;" Mr. Guy le Strange for a paper on the Arabic geographers; Mr. St. Clair, Mr. Birch, Mr. Laurence Oliphant, and Dr. Hutchinson, for notes on various points. Major Conder has again proved himself a steady friend and supporter, by contributing many valuable papers.

We have also in the press a paper by the Rev. Dr. Post, of the Medical College, Beyrout, giving an account of the botanical results of a journey to Eastern Palestine. They will be issued in October.

The Enquiry into the Manners and Customs is also in Dr. Post's hands, and he will begin to forward replies on his return to Beyrout in the autumn.

We have at length completed the long-promised "Names and Places," containing all the Old and New Testament names, with their modern equivalents. The whole forms a volume which is of the greatest use to Biblical students.

We are preparing for press, and shall shortly issue, the first volume of a work similar in appearance and size to the "Survey of Western Palestine." It will consist of three volumes with an Index, all abundantly illustrated with maps, drawings, plans, &c.

(1) The first volume will be Captain Conder's "Survey of Eastern Palestine," as far as that has been undertaken.

(2) The second volume will consist of M. Lecomte's beautiful drawings, about 900 in number, made for M. Clermont-Ganneau's mission of 1873–1874, with some descriptive text.

(3) The third will contain Mr. Chichester Hart's "Natural History of the Wâdy 'Arabah."

There will be 500 copies, and no more, of the work. The price of subscription is £7 7*s.* for the first 250 copies, and £12 12*s.* for the next 250. The agent, Mr. A. P. Watt, has already received a sufficient

number of promises to warrant the Committee in authorising the commencement of the work.

Mr. Harper, one of the Executive Committee, is engaged upon a popular work, which, though it will not be published by us, will have our hearty good wishes. It is an account of the light thrown upon the Bible by all the recent excavations and surveys. We have placed at his disposal all the assistance in our power.

The Balance Sheet for the year 1887 is as follows :—

BALANCE SHEET FOR THE YEAR ENDING 31st DECEMBER, 1887.

Receipts.	£	s.	d.	Expenditure.	£	s.	d.
Balance, 31st December, 1886	322	11	0	Management	407	5	7
Donations, Subscriptions and Lectures	1,572	9	11	Exploration	647	14	0
Maps and Memoirs ..	280	10	4	Printers and Binders ..	942	4	0
Books..	369	10	3	Maps and Memoirs ..	337	3	7
Photographs.. ..	5	1	5	Balance, December 31st, 1887.. ..	215	15	9
	£2,550	2	11		£2,550	2	11

The Secretary, Mr. Walter Besant, who had for some time given his services gratuitously to the Society, has found it impossible to continue them, and has, therefore, resigned, but he has consented to remain as Hon. Sec., and we have appointed Mr. George Armstrong as Assistant Secretary. The management expenses of the Society are kept down by this change, and it is hoped that the efficiency of the office will not be in any way lowered.

We have to propose as members of the General Committee the following :—

General Sir F. Goldsmid, K.C.S.I.,
Professor Greenwood, of "The Owens College," Manchester,
Halford J. MacKinder, M.A., F.R.G.S.,
Rev. E. W. Bullinger, D.D.
Rev. George E. Post, M.D., M.A., of the Medical College, Beyrout.

In conclusion, we have to assure the General Committee and our Subscribers generally that all the steps necessary to ensure continuation of the work on its present lines have been taken—that is say, no opportunity will be lost of making researches and following up discoveries in the Holy City, and every possible agency will be brought to bear in the prosecution of research in the Holy Land itself and the countries which surround it.

We have to express our best thanks to the local Hon. Secretaries, and to all who have helped to extend the knowledge of our existence and

aims, and even claims, to larger and more general support. The income of the Society is barely equal to the demands upon it, and while we are continually paying off the liabilities caused by the printing of papers and results, more reports continually arrive which call for immediate publication.

It was proposed by Mr. Guy le Strange, and seconded by Professor Hull, that the Report be received and adopted. This was carried unanimously.

It was proposed by Professor Hayter Lewis, and seconded by Mr. Morrison, that the following gentleman be elected members of the General Committee :—

General Sir F. Goldsmid, K.C.S.I.,
Professor J. G. Greenwood,
Halford J. MacKinder, Esq., M.A., F.R.G.S.,
Rev. E. W. Bullinger, D.D.
Rev. George E. Post, M.A., M.D.

This was carried unanimously.

It was proposed by Mr. Maudslay, and seconded by Mr. Guy le Strange, that the Executive Committee be re-elected, with the addition of Mr. Walter Besant. This was carried unanimously.

The following paper was read by Professor Hull :—

Geological investigation has made considerable progress in the regions adjoining Palestine, both to the north and west and south, since the publication of the "Geological Memoir on Arabia Petræa and Palestine."

1. The work of Dr. Carl Diener, of Vienna, entitled "Grundlinien der Physischen Geographie und Geologie von Mittel Syrien," Wien, 1886. This is certainly the most important work which has yet appeared on the geology of the Lebanon, as the author has not been content merely with an outline of the formations, but has produced a detailed map showing the geological structure of the region lying between Beirût and Damascus, and reaching as far south as the Lake of Merom.

2. Then there are the excellent papers of Herr Schumacher on the region of the Jaulân and part of the Haurân, extending from the Jordan Valley to the neighbourhood of Damascus, accompanied by an excellent topographical map in which the old volcanic craters and lava-streams are clearly delineated ; together with other physical phenomena of that remarkable region.

3. Then there is the remarkable work of Mr. Doughty on "Arabia Deserta," in two volumes, in which it is shown that the great Arabian Desert, lying to the east of Moab and Edom, is largely occupied by extinct volcanic cones and lava-streams, similar to those which are found in the Jaulân and Haurân. There can be little doubt but that these volcanoes were in active eruption during the same period as those in Northern Palestine and Syria, and that they died out and became extinct at, or about, the same epoch, so that it would appear that the whole

region ying to the east of the Jordan-Arabah Valley, and stretching from the base of Hermon for several hundred miles into the Arabian Desert, was the scene of active volcanic operation in the Pliocene, and perhaps in the Post-Pliocene epoch.

It was proposed by Professor Hayter Lewis, and seconded by Dr. Ginsburg, that the best thanks of the General Committee be awarded to Mr. Walter Besant on his resigning the office of Secretary.

It was proposed by Mr. Maudslay, and seconded by Professor Hull, that the best thanks of the Committee be passed to the Chairman, Mr. James Glaisher.

The proceedings then terminated.

NEHEMIAH'S WALL AND THE ROYAL SEPULCHRES.

THE following is an abstract of a Paper read by Mr. George St. Clair, Lecturer to the Society, at the recent meeting of the British Association at Bath :—

The topography of Ancient Jerusalem has been difficult to make out, and the site of the sepulchres of the kings of Judah remains unknown. But the problem has been simplified by recent excavations. We now, for the first time, know the contours of the rock and the features of hill and valley before the 80 ft. of *débris* began to accumulate.

The Akra of the Maccabees being identified, it is seen how by the recorded filling up of the Asmonean valley the two parts of the Lower City became joined into one *crescent*, lying with its concave side towards the Upper City, according to the description of Josephus.

The investigations of Sir Charles Warren show that the Temple must be placed on the summit of Moriah, with Solomon's palace south-east of it, leaving a vacant square of 300 ft., where now we leave the south-west corner of the Harem Area.

From the south-east corner of the Haram enclosure extends the wall of Ophel, discovered by Warren, running 76 ft. to the south, then bending toward the south-west. Further, it is found that from the Gate of the Chain, in the west wall of the Haram enclosure, a causeway, with complicated structures, extends westward towards the Jaffa Gate.

Having this groundwork we may proceed to place the walls :—

The 3rd wall, built by Agrippa, does not concern us.

As regards the 2nd wall, it suffices for the present purpose to adopt the line of Herr Conrad Schick.

The 1st wall was the wall of the Upper City. On the northern side it ran from the Jaffa Gate to the Haram wall. The uncertainty has been about its southern portion. The author gives, on a diagram, the line he has been led to adopt ; and then shows that it corresponds in detail with the descriptions in the Book of Nehemiah.

Taking Nehemiah's night survey; then the consecutive allotments of work assigned to those who repaired the walls; and thirdly, the points successively reached and passed by the processionists when the walls were dedicated—it is shown that every mention of a gate or a tower, the number and the order of salient and re-entering angles, and every other note of locality, exactly agree with the course of the walls as suggested.

This course, moreover, involves the least possible variation from the present line of walls, and more in the way of addition than of deviation.

The hypothesis commending itself as true, by corresponding minutely with Nehemiah's descriptions, by tallying exactly with other Biblical references, and by meeting all the requirements of the case, it has this important practical bearing, that it indicates the site of the royal sepulchres, of the stairs of the City of David, of "the Gate between two walls," &c., and shows, incontestably, that Zion included the eastern hill.

In the author's plan, exhibited, the south wall of the Upper City crosses the ridge of the hill in the line of the present wall, and then makes a bay up the Tyropœan.

A cross wall, to the Ophel hill (also in the line of the present wall), is the wall of the Pool of Shelah, and terminates in steps, ascending and curving round towards the Triple Gate, which is regarded as the Water Gate. The royal sepulchres are on the north side of the wall of Shelah, excavated in the hill of Ophel, the entrance being close to the south-west corner of the buildings which stand out to the south of the Double Gate.

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